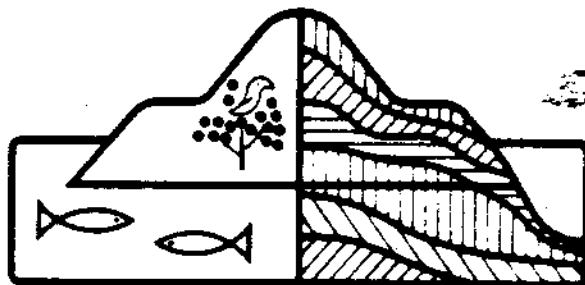


Oil and Gas Regulations



**DEPARTAMENTO
DE RECURSOS
NATURALES**

**PUERTO RICO REGULATIONS
FOR
LEASING, PROSPECTING AND PRODUCING
OIL AND GAS**

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Secretary of State

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**REGULATIONS FOR PROSPECTING, LEASING
AND PRODUCING OIL AND GAS**

CHAPTER 1. DEFINITIONS

(1) **"Affiliate"** shall mean any person, directly or indirectly, controlling, controlled by, or under common control of another person.

(2) **"Allowable"** shall mean the maximum daily rate of production from a well or field established by the Secretary.

(3) **"A.P.I."** American Petroleum Institute.

(4) **"Barrel"** shall mean a quantity or unit of oil equal to 158.984 liters (42 United States gallons) measured under standard conditions.

(5) **"Block"** is an area bounded by five (5) minutes along two parallels and five (5) minutes along two meridians, selected in such a way that a group of 144 entire blocks is contained in a area which is bounded by one degree along two parallels and one degree along two meridians. One block contains 900 Grants.

(6) **"Blow-out"** shall mean an uncontrolled escape of oil, gas, water, or drilling fluid from a well.

(7) **"Blow-out preventer"** shall mean a heavy casing-head control fitted with special gates or disks which may be closed around the drill pipe or which completely closes the top of the casing if the drill pipe is withdrawn.

(8) **"B.S.&W."** Basic sediment and water.

(9) **"Casing-head gas"** shall mean any gas or water vapor, or both gas and vapor, produced with the oil.

(10) **"Catch basin"**
means a sump which is constructed to protect against unplanned overflow of pluvial run-off or accidentally discharged petroleum in liquid conditions.

(11) **"Christmas tree"** shall mean an assembly of valves and fittings at the head of the casing of a well to control the flow (also referred to as "wellhead connections").

(12) **"Combination well"** shall mean a well productive of both oil and gas from the same common source of supply.

(13) **"Commercial discovery"** is a discovery of an oil

and/or gas field capable of producing commercial quantities of oil and/or gas from one or more wells.

(14) **"Commercial quantity"** in reference to the output of a well, shall mean such quantity of oil and gas, which, after considering the cost of drilling and production operations, the quantity of production and the availability of markets would economically warrant the development and production of oil or gas reserves encountered or in case of a well on production, would economically warrant the continuation of production.

(15) **"Common source of supply"** shall mean a geographic area or horizon definitely separated from any other such area or horizon and which contains, or from competent evidence appears to contain, a common accumulation of oil or gas or both, and refers to any oil or gas field or part thereof which comprises and includes any area which has under it, or which from geological or other scientific data or experiments of drilling operations or other evidence appears to have under it, a common pool or accumulation of oil or gas or both oil and gas.

(16) **"Commonwealth"** shall mean the Commonwealth of Puerto Rico, including the island of Puerto Rico, its adjacent islands and the seabed and subsoil of the submarine areas adjacent thereto within its jurisdiction to the depth which admits the exploitation of the natural resources of said areas.

(17) **"Condensate"** shall mean the liquid hydrocarbons recovered at the surface that result from condensation due to reduced pressure or temperature of petroleum hydrocarbons existing initially in a gaseous phase in the reservoir.

(18) **"Conservation"** shall mean conserving, preserving, guarding, or protecting the value of oil and gas resources of the Commonwealth by obtaining the maximum efficiency with minimum waste in the production, transportation, processing, refining, treating, and marketing of the unrenewable oil and gas resources of the Commonwealth.

(19) **"Control"** shall mean the power to influence the management and policies of another person, directly or indirectly, whether through the ownership of voting securities, by contract or otherwise.

(20) **"Cubic foot"** shall mean, with reference to gas, the volume of gas contained in one cubic foot of space under standard conditions.

(21) **"Day"** shall mean a period of 24 consecutive hours from 7:00 am one day to the following day.

(22) **"Department"** shall mean the Department of Natural Resources of Puerto Rico, created by Law No. 23 of June 20, 1972 as amended.

(23) **"Development Operations"** shall mean operations other than Exploration Operations conducted to prove the existence of and facilitate extraction of commercial quantities of oil and gas.

(24) **"Drilling fluid"** shall mean any fluid, utilized in the drilling process to lubricate the drill, to facilitate the containment of fluids within the drillhole and to promote the expulsion of the cuttings from the drillhole.

(25) **"Exploration operations"** shall mean geological examinations, geophysical examinations, aerial mapping, investigations relating to the subsurface geology, stratigraphic test drilling, exploratory wells and related activities which are conducted in connection with searching for oil and or gas.

(26) **"Extract"** is for the purpose of these regulations the process of producing oil and gas and related by-products, and the separation, purification, compression, liquefaction, processing, storing, transportation and sale of oil and gas, but does not include refining of oil or the distribution and marketing of oil products or natural gas.

(27) **"Field"** shall mean the area designated by the Secretary which has under it, or appears to have under it, at least one reservoir; and "field" shall include the underground deposit or deposits containing oil or gas, or both. The words "field" and "reservoir" mean the same thing when only one underground deposit is involved; however, "field", unlike "resevoir", may relate to two or more "reservoirs".

(28) **"Gas"** shall mean and include all natural gas, including casing-head gas, and all hydrocarbons produced in a gaseous state at the wellhead under standard conditions and not defined herein as oil.

(29) **"Dry gas"** shall mean natural gas, including that obtained from casing-head gas, which does not contain heavier fractions which may easily condense at standard conditions or from which heavier fractions have been removed by processing.

(30) **"Gas-oil ratio"** shall mean the ratio of standard cubic feet of gas to barrels of oil produced concurrently during any stated period.

(31) **"Gas repressuring"** shall mean the introduction of gaseous substances into a reservoir by artificial means in order to replenish, replace, or increase the deposit energy.

(32) **"Gas well"** shall mean any well (a) which produces natural gas not associated with or blended with crude petroleum oil at the time of production, or (b) which produces more than 30,000 cubic feet of natural gas to each barrel of crude petroleum oil from the same producing horizon, or (c) which produces natural gas from a formation or producing horizon productive of gas only encountered in a well bore through which crude petroleum oil also is produced through the inside of another string of casing.

(33) **"Grant"** is for the purpose of these regulations a tract of land bounded by ten(10) seconds along two parallels and ten (10) seconds along two meridians, selected in such a way that a group of 36 entire grants is contained in an area which is bounded by one minute along two parallels and one minute along two meridians.

(34) **"Investment and operation expenses"** for purposes of the Mining Law, 28 L.P.R.A. §117 (d) (1), shall exclude any sums paid by a lessee to an affiliate in excess of the actual costs incurred for the services or materials by the affiliate.

Actual costs shall include a reasonable allocation of general and administrative costs sufficient to prevent the affiliate from incurring a loss but shall not include any sum representing a profit to the affiliate.

(35) **"Lease"** shall mean an oil and gas lease executed by the Secretary of Natural Resources and approved by the Governor of the Commonwealth.

(36) **"Lease area"** shall mean the area located within the boundaries established in a lease.

(37) **"Lessee"** shall mean a person holding an effective oil and gas lease and shall include any assignee, sublessee, lease operator, or other person who by contract with a lessee, sublessee or lease operator has substantial control over a lease operation and is specified by the Secretary as a lessee for the purpose of these regulations.

(38) **"Lithostatic Pressures"** Subsurface pressures due to the weight of the overburden.

(39) **"Maximum Efficient Rate"** The maximum rate at which an oil well may be produced without reservoir damage or waste of reservoir energy.

(40) **"Mining Law"** shall mean Act. No. 9, approved August 18, 1933 (28 L.P.R.A. §§110 to 124), as amended.

(41) **"Month"** shall mean the period or interval of time from 7:00 am on the first day of any month of the calendar to 7:00 am of the first day of the next succeeding month of the

calendar.

(42) **"Multiple completion"** shall mean the completion of any well so as to permit the production from more than one reservoir, with the production from each reservoir completely segregated.

(43) **"Non-Associated gas"** shall mean natural gas obtained from reservoirs productive of gas only.

(44) **"Oil"** shall mean crude petroleum and other hydrocarbons regardless of gravity which are produced at the wellhead in liquid form under standard conditions and the liquid hydrocarbons known as natural gasoline or condensate recovered or extracted from gas under standard conditions.

(45) **"Oil sump"** means any open depression or basin in the ground, whether man-made or natural, which contains oil or a combination of oil and water.

(46) **"Oil well"** shall mean any well that is capable of producing oil and is not a gas well.

(47) **"Operations sump"** means a sump used in conjunction with a drilling or workover rig during the period of time a well is being drilled or reworked.

(48) **"Open Flow Potential"** The rate at which a gas well would produce with zero pounds per square inch back pressure against the formation face.

(49) **"PEPA"** Public Environmental Policy Act, Law No. 9 of June 18, 1970 as amended.

(50) **"Permit"** shall mean a permit required from the Secretary of the Department of Natural Resources to engage in activities related to prospecting, drilling, or extraction of oil and gas.

(51) **"Permittee"** shall mean a person who is the holder of a permit and shall include any assignee of a permit or other person who, as a result of a contract with a permittee, is engaged in an exploration activity and is designated as a permittee by the Secretary for the purposes of these regulations.

(52) **"Person"** shall mean and include any natural person, firm, corporation, association, partnership, joint ventures, receiver, trustee, guardian, executor, administrator, fiduciary, representative of any kind or any other group acting as a unit, and the plural as well as the singular number.

(53) **"Pressure maintenance"** shall mean any practice

which tends to preserve all or a portion of original deposit pressure.

(54) **"Product"** shall mean any refined commodity made from oil and or gas, and shall include refined crude oil, crude tops, topped crude, processed crude petroleum, residue from crude petroleum, cracking stock, uncracked fuel oil, treated crude oil, residuum, gas oil, casing-head gasoline, natural gas gasoline, naphtha, distillate, gasoline, kerosene, benzine, wash oil, waste oil, blended gasoline, lubricating oil, blends or mixtures of oil with one or more liquid products or by-products derived from oil and or gas, and blends or mixtures of two or more liquid products or by-products derived from oil and or gas, whether hereinabove enumerated or not.

(55) **"Regulations"** shall mean the regulations issued by the Secretary of Natural Resources pursuant to the Mining Law with respect to prospecting for, leasing and producing oil and or gas.

(56) **"Reservoir"** shall mean an underground deposit containing, or appearing to contain, a common accumulation of oil or gas or both and shall include any zone of a general structure which is completely separated from any other zone in the structure.

(57) **"Resident of the Commonwealth"** is a person that lives, temporarily or permanently, within the Jurisdiction of Puerto Rico.

(58) **"Secretary"** means the Secretary of the Department of Natural Resources.

(59) **"Seismic hole"** shall mean a bore hole drilled for the purpose of detonating explosives used in seismic surveys.

(60) **"Separator"** shall mean a pressure vessel, container or device of any form in which gas is separated from oil.

(61) **"Shut-in pressure"** shall mean the pressure noted at the wellhead when the well is completely shut in.

(62) **"Standard conditions"** shall mean a temperature of 60 F and absolute pressure of 14.73 p.s.i.

(63) **"Sump"** means an open pit or excavation or a covered container which can properly be used to collect and/or temporarily store muds, fluids, or waste waters.

(64) **"Waste"** shall mean, with reference to oil or gas, in addition to its ordinary meaning, "physical waste" as that term is generally understood in the oil and gas industry, and shall include the following:

(A) Locating, spacing, drilling, equipping, operating, or producing any well or wells in such manner as to cause or tend to cause unnecessary or excessive surface loss or destruction of oil or gas.

(B) Inefficient, excessive, or improper use or dissipation of reservoir energy.

(C) Storage of oil in a manner which does not reasonably prevent physical loss.

(D) Nonuniform, disproportionate, or uncontrollable withdrawals, causing undue drainage from reservoirs beneath adjacent tracts of lands.

(E) Producing oil or gas in such manner as to cause unnecessary water channeling or coning.

(F) Operation of any oil well or wells with an inefficient gas-oil ratio where subject to control.

(G) Flooding with water of any stratum, or part thereof, capable of producing oil or gas.

(H) Underground waste caused by the inefficient, excessive or improper use or dissipation of the reservoir energy, including gas energy, and water drive of any reservoir reducing or tending to reduce the total oil or gas ultimately recoverable from a reservoir.

(I) Creating any unnecessary fire hazard.

(J) Permitting gas produced from a gas well to escape into the air, except as shall be unavoidable in the efficient drilling and operation of the well.

(K) Permitting gas produced from a combination well to escape into the open air, except as shall be unavoidable in the efficient drilling and operation of the well.

(L) Producing oil and gas in excess of any allowable production fixed by the Secretary.

(65) "Waste water" means produced water which after being separated from the produced oil may be of such quality that discharge requirements need to be set by the Environmental Quality Board.

(66) "Well" means any opening in the ground or seabed (other than a seismic hole) made or being made by drilling or boring, or in any other manner, through which any oil or gas is obtained or is obtainable, or for the purpose of discovering oil or gas, or for the injection of any liquid or gas into any underground reservoir.

(67) "Well log" shall mean the record progressively describing the strata, water, oil or gas encountered in drilling a well with such additional information as to gas volumes, pressures, rate of fill-up, water depths, caving strata, casing record, and any other measurement recorded in the normal procedure of drilling.

CHAPTER 2. DISPOSITION OF OIL AND GAS

Section 1. Requirements for Exploration or Extraction

No person shall permit, conduct, or in any way assist in any operations within Puerto Rico concerned with the exploration for or the extraction from an underground deposit of any oil or gas, except in accordance with the provisions of the Mining Law, these regulations and amendments thereof, and any special rules, regulation, and orders of the Secretary, and as permitted by any prospecting permit or lease duly granted by the Secretary.

Where reference is made in these regulation, any special rules, regulation or orders of the Secretary to "good oil field practices", a permittee or lessee shall be deemed to have complied with the requirement if the operations or activities under consideration are conducted in accordance with the then current Recommended Procedures or Standards of the American Petroleum Institute (API).

Where a requirement in these regulations, any special rules, orders or regulations of the Secretary, imposes unnecessary or unreasonable financial burdens on any permittee or lessee or exposes any person to unreasonable risk of injury, to body or property, such permittee or lessee may request in writing that the Secretary grant an exception to the requirement to the extent necessary to avoid such burden or risk.

A permittee or lessee requesting an exception shall cause a copy of the request to be mailed to any person reasonably ascertainable as being adversely affected by the relief sought from the Secretary, which person may file comments thereon with the Secretary. The Secretary will issue a decision with respect to any request for an exception after considering the application and any comments, and may request that the parties submit such additional information as he deems necessary and appropriate for a full consideration of the request.

Section 2. Waste of Oil or Gas

No person shall permit, conduct, or in any way assist in the waste of oil or gas within Puerto Rico. All persons to whom a exploration permit has been granted or with whom leases have been executed shall take reasonable steps to prevent the waste of oil and gas. When the interest of the Commonwealth require, the Secretary may authorize lessees to engage in operation or activities which otherwise would fall within the definition of waste.

Section 3. General application of Laws

Any permittee or lessee shall be subject to the laws of

the Commonwealth of Puerto Rico, as may be applicable, irrespective whether such activities are carried out on land or in waters over which Puerto Rico has jurisdiction.

Section 4. Application of Environmental Laws

Any permittee or lessee shall be subject to the Puerto Rico Environmental Public Policy Act, Law No. 9 of August 18, 1970 and all other environmental laws, regulations and policies of the Commonwealth of Puerto Rico, irrespective whether such activities are carried out on land or in waters over which Puerto Rico has jurisdiction.

This provision is deemed to be included as a condition of every permit or lease granted by the Secretary of Natural Resources.

CHAPTER 3. PROSPECTING PERMITS

The Secretary may issue both of the following types of prospecting permits:

Section 1. Exclusive Prospecting Permits

Exclusive prospecting permits may be granted for the purpose of protecting priority rights while considering subsequent leases of a prospecting area or of any part thereof, under the following conditions:

(a) The permit shall be limited to oil and gas and shall contain a work program approved by the Secretary.

(b) The permit shall be limited as to area, which shall be fixed by the Secretary according to the circumstances in each case and taking into account, among other factors, the type of hydrocarbons sought, the estimated availability of same if possible at the stage, and the commercial value of the said hydrocarbon, as well as the nature and the cost of the prospecting proposed by the applicant of the permit.

(c) The terms and conditions of the subsequent lease may be negotiated and determined jointly with the granting or renewal of an exclusive permit. This shall not be construed as a limitation to the power of the Secretary to impose, at the time of granting the lease, such additional terms and conditions as he may deem necessary to carry out the exploitation of the hydrocarbons pursuant to the provisions of this chapter.

(d) The permit shall be granted for the term of one (1) year and may be renewed for not more than nine (9) subsequent periods of one (1) year each, provided that, if the permit holder has substantially complied with the provisions of the Mining Law and these Regulations as may be amended thereof, with any special rules and orders of the Secretary and with all the provisions and conditions of the permit, it shall be entitled to the renewal of the permit requested from the Secretary.

(e) A fee of two hundred (200) dollars shall be collected for each permit and for each subsequent renewal.

(f) The permit entails the right to enter upon private property, provided compliance with the provisions (g) below are met.

(g) Activities requiring the use of powered vehicles, earth movers, drills, or other equipment which affects the soil or the crops, may be carried out by the prospector only with the express permission of the Secretary, but in all cases it shall be necessary to obtain first the permission of

the owner of the land in writing, and to compensate him for all such damages as he may sustain.

The Secretary may require the prospector to post an acceptable bond in such amount as the former may deem necessary to pay the owner of the land for the damages in cases where the soil, buildings or crops suffer damages or reduction in value.

The owner of the property may submit to the Secretary any grievances he has with regard to the activities of a prospector and may require of the Secretary that he determine, through arbitration, and at no cost to the owner, the extent of any damages sustained by the owner as a result of such activities.

(h) The prospector shall submit a semiannual report in writing of the results of his operations, which report shall be kept strictly confidential until the expiration of his prospecting permit unless the lease provided in the permit becomes effective in the interim.

(i) Within the three months following the expiration of the permit, the prospector shall, unless the lease has become effective, submit to the Secretary a copy of all maps, measurements, assays, and other information obtained as a result of the prospecting carried out and of possible value in determining the existence or absence of hydrocarbon deposits in the prospecting area. Such information shall be made available to the public.

Section 2. Nonexclusive Permit

The nonexclusive permit entails the conditions enumerated under paragraphs (f), (g), (h) and (i) of Section 1 of this Charter, but shall not be limited as to the size of the prospecting area. This permit does not entail advance lease rights and the prospector may not negotiate the terms and conditions of the lease prior to discovery of a hydrocarbon and application for lease for the exploitation thereof. This permit shall be granted for the term of one (1) year and may be renewed for subsequent one-year periods.

CHAPTER 4. CONDUCT OF PROSPECTING ACTIVITIES

Section 1. Scope of Prospecting Activities

The term prospecting shall apply to all geological and geophysical work, including the drilling of stratigraphic holes to a depth not to exceed 200 meters. Stratigraphic tests deeper than 200 meters may be drilled under a prospecting permit, but will be classified as exploratory holes and will be subject to the pertinent requirements of Chapter 8.

Section 2. Onshore Prospecting Activities

(a) Compliance with Certain Provisions of Chapter 3.

Onshore activities shall conform with the requirements of Chapter 3, Section 1. Paragraphs (g), (h), and (i).

(b) Samples and Cores

- i) Unless otherwise directed by the Secretary, in any exploration or stratigraphic test hole each permittee shall cause to be taken, preserved, and maintained a series of samples. Samples shall be taken at interval depths of 30 feet from surface coring until rates become sufficiently slow to permit collecting samples at 10-foot intervals. Thereafter, samples will be taken at interval depths of 10 feet in accordance with the best current industry practice of the various formations which any non-coring drilling penetrates.
- ii) It shall be the policy of the Commonwealth to require that a core sample be taken, preserved, and maintained during prospective drilling into geologic formations for which little or no information is otherwise available. The zones from which core samples are to be taken shall be specified by the Secretary. However, the Secretary or authorized representative may verbally waive the requirement to take a core sample if the designated zone is found to be pressurized in excess of lithostatic pressures, or if the operator encounters other conditions rendering core sampling unsafe. Any verbal waiver shall be documented within one working day.
- iii) All cores taken from the core barrel shall be released in book fashion into core boxes and accurately labeled on the body, not the lid, of each box as to the number and interval of the core, top, bottom, and percentage recovery of the core and the name of the well or stratigraphic test hole

from which the core is taken.

- iv) Boxes shall be of sturdy construction. The sides of the boxes shall project above the level of the contained cores and lids shall be securely fixed to ensure safe transit. Such boxes shall not exceed 3 feet in length.
- v) Reasonable steps shall be taken to protect boxes containing the cores from theft, misplacement, or exposure to the weather. A reasonable time shall be afforded the permittee or lessee to carry out examinations and obtain core analysis.

Upon request of the Secretary, cores shall be split longitudinally and one half thereof forwarded prepaid to the Department of Natural Resources.

- vi) The lessee shall retain and store all cores in a secure facility in the Commonwealth provided that such portions thereof as are reasonably necessary for analytical purposes may be transported out of the Commonwealth if facilities for analysis are not available in the Commonwealth and provided further that if the Secretary directs no other disposition within two years of the coring, the lessee may forward cores to the Secretary prepaid.
- vii) If required to do so by the Secretary at the time of issuance of a drilling permit, the licensee, permittee, or lessee shall, when an exploration well or test hole being drilled is approaching a formation of potential oil or gas production, core and adequately test such formation. Such coring and testing shall be conducted in a manner which is reasonable and proper in the judgment of the operator and not detrimental to the operation being performed, and such hole must be in proper condition before coring or testing is performed.

(c) Water to be Protected

- i) All surface or underground waters of present or probable future value for domestic, municipal, commercial, stock, or agricultural purposes shall be confined to their respective strata and shall be adequately protected. Special precautions shall be taken in drilling or abandoning holes to guard against any loss of ground water from the strata in which it occurs, and the contamination of said water by objectionable water, oil, or gas.
- ii) Special Precaution for Perched Saline Waters

Borings or drilling through a confining or barrier formation which is perching saline waters shall be avoided to the greatest extent possible. The Secretary may require special isolation and cementing programs for any hole which is permitted to penetrate perched formations.

(d) Seismic, Core and Stratigraphic Holes to be Plugged.

Before any hole is abandoned which is drilled for seismic, core or other prospecting purpose, it shall be the duty of the owner or driller of any such hole to plug the same in such manner as to properly protect all water-bearing formations.

(e) Wells Used for Fresh Water.

When the hole to be plugged may be safely used as a fresh water well, and such utilization is desired by the landowner and approved by the Secretary, the operator shall be relieved of any responsibility for the hole only after he has successfully plugged the hole in such a manner as to isolate the fresh water zone from the lower formations.

Section 3. Policy on Offshore Geophysical Prospecting

(a) Any exploration for minerals conducted in the offshore areas within the jurisdiction of the Commonwealth of Puerto Rico, shall require the issuance of a prospecting permit by the Secretary, including exploration using active and/or passive geophysical methods, such as, but not limited to:

- i) Magnetic and aeromagnetic surveys;
- ii) Hydrocarbon, radioactive, and metal trace analysis;
- iii) Seismic and or geo-acoustic survey or soundings;
- iv) Electromagnetic wave reflection and refraction analysis;
- v) Gravimetric survey.

The utilization of any of the above procedures for purposes other than gas and/or oil prospection shall not be affected or controlled by these regulations.

(b) Prospection (or exploration) in the territorial waters of Puerto Rico, shall be conducted with the minimum possible disturbance of the environment and competing uses of the water surface and water column. Explosive or electromagnetic devices with a lethal range to marine life exceeding two meters, will not be permitted except upon a demonstration that:

- i) There is the potential of great benefit to the Commonwealth;
- ii) Alternative methods have been completely tried unsuccessfully.

Section 4. Use of Explosives

(a) Whenever explosives shall be used as the acoustical energy in seismic surveying, all requirements of the Commonwealth Law of Explosives, Law 134 of June 28, 1969, shall be observed with respect to the use, handling, storage, transportation, and notification to the Police of Puerto Rico and the USCG DOT regulations concerning the stowage and transport of explosives by vessel.

(b) It shall be the policy of the Commonwealth to require that the amount of explosive used shall be the minimum consistent with good echo signal return and interpretation. The Secretary, in authorizing the use of explosives in the survey and exploration plan, shall review the record of the first two days of survey to determine whether the amount of explosive being used is consistent with this policy.

(c) The use of explosives within 200 meters of a residence, measured upon the surface, or in any body of water containing wildlife such that loss of said wildlife may result, shall be contingent upon and subject to the environmental impact statement process of PEPA.

Section 5. Confidentiality

(a) All reports of the results of operations required under a prospecting permit, including well logs, electrical logs, cuttings, and core samples, shall be kept strictly confidential, either until the expiration of the prospecting permit, or until such time that a lease becomes effective.

(b) Within three months following the expiration of the prospecting permit, the holder of a prospecting permit, shall submit to the Secretary all maps, measurements, assays, and the information obtained as a result of the prospecting, including all well logs, electrical logs, cuttings, and core samples required.

(c) The Secretary may grant confidentiality to all well logs, electrical logs, cuttings, and cores submitted by a lessee, if the lessee so requests in writing, and upon a determination that exploratory work of value will be undertaken, for a period not to exceed five (5) years after the filing of the logs, cuttings, or cores.

CHAPTER 5. LEASES

Section 1. Rights of Lessee

(a) A lease shall confer upon a lessee, according to the terms and conditions contained herein and in the lease itself, the right to conduct exploration, and upon discovery of commercial quantities of oil and/or gas, the right to extract these minerals. A lease shall confer the rights to both oil and gas.

(b) No lease shall include the right to extract, own, or dispose of oil shale or bituminous sands, or the oil which may be recovered from such shale or sands, except as specifically provided by the terms of lease. The disposal of oil shale, bituminous sands, or other soil or rock materials, containing hydrocarbons, which are obtained as a result of drilling wells, maintenance of wells, or processing of hydrocarbons obtained from wells, shall be carried out in accordance with an approved plan of development and operation of the well.

Section 2. Application for Lease

Except in those instances in which the terms of a lease are negotiated prior to and may become effective as provided in a permit, any permittee, and any person eligible for a permit under Chapter 3 hereof may apply to the Secretary for a lease. Such application shall:

(a) designate the location to which the lease shall be limited, by means of a description of the metes and bounds thereof as expressed in latitude and longitude;

(b) state the extent and character of the exploration and/or development work to be done and the estimated cost thereof;

(c) be accompanied by a fee of five hundred (\$500) dollars;

(d) be accompanied by evidence that if a lease becomes effective, the applicant will, if required, provided a liability bond satisfactory to the Secretary in a principal sum determined by the Secretary but not less than \$100,000, which shall remain in effect during the duration of the lease, and which shall be payable in certified check to the Secretary of the Treasury of Puerto Rico according to the terms and conditions prescribed therein.

Section 3. Basis for Granting Lease

(a) An application for a lease shall not confer upon the applicant any rights whatsoever; and the Secretary shall have

complete and exclusive discretion to evaluate applications and conclude leases as he may determine subject to the approval of the Governor. The Secretary may require lessee to post the described bond in 2(d) above.

(b) The Secretary may require that any applicant for a lease supply information to assist the Secretary in preparing and issuing an Environmental Impact Statement, or a negative declaration, in accordance with the PEFA.

(c) The Secretary may require continuing monitoring activities of the environment, either by the applicant, or supported by the applicant, as a contingent condition for the conclusion or non termination of the lease.

(d) All expenses incurred by an applicant or lessee in supplying information required under this Section, and prior to the commencement of resource production, shall be considered equivalent to capital investments in exploration and development of the lease, subject to the audit and acceptance of the Secretary for prospecting and exploration expenses. All expenses incurred by a lessee in supplying information or monitoring under this section after the commencement of production shall be considered as operating expenses of the lessee, subject to audit and acceptance of the Secretary.

Section 4. Area Covered by Lease

The area covered by a lease shall be comprised of one or more grants as may be determined by the Secretary. The grants, where possible, shall form entire blocks, and the blocks shall form, where possible, a continuous area whereby blocks are joined at least by one side. In general, initial lease areas shall be selected in a manner that a viable exploration program can be carried out in the lease area, and that open acreage not selected in the lease area is of no interest for petroleum exploration nor could form a relevant part of another lease area.

Section 5. Term of Lease, Renewal

The Secretary may establish the term of a lease up to a period of thirty (30) years, effective from the date of approval of the lease by the Secretary. Unless otherwise agreed by the Secretary and the lessee, a lessee desiring to renew a lease shall submit to the Secretary a written request for its renewal not later than six (6) months prior to the date of termination of the lease.

Not later than the end of the third (3rd) month following receipt of such request, the Secretary shall communicate to the lessee the terms and conditions for renewal of the lease, not to exceed a period of ten (10)

years, and the lessee shall have a preferential right to renew the lease under the terms and conditions prescribed and communicated to lessee by the Secretary; provided that the lessee accepts said conditions not later than one (1) month prior to the expiration of the term of any renewal of the lease.

If during such time, lessee has not accepted the terms and conditions prescribed by the Secretary, or a mutually agreed modification to such terms and conditions, the Secretary shall be free to negotiate a lease or leases for the original lease area with third parties.

Section 6. Boundaries Beneath Surface

(a) The boundaries beneath the surface of a lease area shall be the vertical extensions in which its surface boundaries lie. The Secretary may, upon a showing of good cause, authorize a lessee to drill into a lease area by deviated drilling beginning outside the lease area and, incident thereto, may issue such permits for the entry upon private or public lands as may be required.

(b) Criteria for authorizing drilling into a lease area by deviated drilling, beginning outside the lease area, shall include, at a minimum:

- i) the cost of alternative drilling methods;
- ii) the environmental impacts of utilizing the land outside the lease area for drilling purposes.

(c) The use of a parcel of offshore lands outside of an offshore lease area, but adjacent thereto and within the jurisdiction of the Commonwealth, for drilling purposes shall be deemed to have complied substantially with the requirements of the environmental statement process if:

- i) lands classified as tide lands are not involved;
- ii) use of the parcel created no additional exposure or hindrance to the navigation of vessels, including private recreational vessels;
- iii) the parcel contains no coralline reefs, nor zones more productive of marine life than the lease parcel;
- iv) traffic in supply and service of drilling does not exceed 15 percent of that contemplated for drilling within the lease area, either by number of trips or by gross mileage;
- v) the point of drilling is no more than 2.0 kilometers from the lease boundary.

Section 7. Survey Boundaries

A survey of the boundaries of the location of every

lease shall be made at the expense of the lessee within one (1) year from the effective date of the lease, or of such extended period as the Secretary shall permit, but not exceeding one (1) additional year, in accordance with such standards as the Secretary may require, and shall be filed with the Secretary.

Section 8. Rental Per Lease Unit

The annual rental payable for any lease shall be \$100 per grant up to 40 grants and \$20 per each grant in excess of 40 grants.

Section 9. Exploration Period and Relinquishments.

The Secretary shall in accordance with the Mining Law provide in the lease for the following:

(a) an exploration period, which shall not exceed four (4) years,

(b) a work commitment for the exploration period,

(c) the relinquishment, upon the termination of the exploration period, of at least 25% of the grants contained in the exploration area.

(d) no more than three (3) renewals of the exploration period not exceeding two (2) years each,

(e) a work commitment for each of the renewals,

(f) relinquishment provisions upon the termination of each renewal, and upon the termination of the last renewal the lessee shall relinquish all remaining grants which form the exploration area, and shall only retain such areas as have been selected as exploitation areas,

(g) upon the verification by the Secretary of a commercial discovery, the lessee may select an area up to six (6) blocks or part of blocks covering the discovery and the surrounding area as exploitation area. Where a discovery extends beyond a six block area and to the extent acreage is available in the lease area, the Secretary may approve a larger exploitation area.

Section 10. Development Works.

For the purpose of these regulations, development works shall include the investment in geophysical, geological and geochemical investigations, the drillings of exploratory, evaluation and development wells, and the construction and installation of facilities equipment, platforms, pipelines, gathering lines, and such other facilities, machinery or

equipment necessary to extract oil or gas.

Expenditures for development operations within the lease during the term of the lease before commencement of commercial exploitation of the lease area or of any area adjacent thereto, shall include the expenses related to exploration operations and any other expense or operating cost incurred in the development of the oil and/or gas producing potential of the lease area.

Indirect expenses of the enterprise, as well as expenses of operation and of the extracting of the oil and/or gas are excluded.

If lessee does not expend the minimum amounts required in this subsection for development operations, lessee shall pay the unexpended balance in cash to the Secretary within sixty (60) days of the end of the year in which the deficiency occurred. The Secretary may reduce the development works requirements in accordance with the Mining Law.

Section 11. Expenditure Carry Forward

In the event the lessee makes expenditures for exploration or development operations in the lease area in any year in excess of the ascending corresponding annual obligation, such excess may be carried forward and applied against the expenditure obligations for succeeding years.

CHAPTER 6. ROYALTIES, PRODUCTION SHARES AND TAXES

Section 1. Payment of Royalty, Production Shares and Taxes

Every lessee shall pay to the Secretary, the lease rentals, a royalty fixed by the Secretary in the lease, in an amount which shall be not less than the percent stipulated by law of all oil or gas obtained from the lease, the government share dues in the production fixed in the lease pursuant to the Mining Law, and such other payments as may be stipulated in the lease. The lease rentals shall be paid during the first fifteen (15) days of each lease year, based on the number of grants contained in the lease area at the first day of the lease year.

Section 2. Quarterly Return and Payment

Every lessee shall file with the Secretary, within thirty (30) days after the end of each quarter of the calendar year, a return showing the gross value, as determined by the Mining Law and any applicable lease or contract, of all oil and gas produced by him during such quarter and setting out such other information as the Secretary may from time to time require, accompanied by payment in full of the royalty, production shares and taxes attributable to such immediately past quarter.

Section 3. Surface Owners

Pursuant to s6 (b) (9) of the Mining Law twenty percent (20%) of the royalties received by the Secretary under this chapter during the first ten years of exploitation shall be paid by the Secretary to the surface owner or owners of the land comprising the lease to which such royalty relates.

In the event the lease and the pool from which production occurs covers land owned by more than one surface owner, the various surface owner's shares in said 20% shall be determined by the Secretary, after hearing, in a fair and equitable manner; provided, that such determination by the Secretary shall not be cause for interruption or cessation of drilling or production.

Pending the Secretary's determination, any royalty money received as a result of production shall be held by the Secretary in escrow and at interest.

Section 4. Sale of Commonwealth Share of Gas and Oil

The Secretary may negotiate provisions in the lease for marketing by lessee of the Puerto Rico share of oil and/or gas prescribed in the lease consistent with the Mining Law.

Section 5. Policy on Processing

All oil and gas resources produced from a lease in Puerto Rico shall have the highest degree of elaboration in Puerto Rico, consistent with the options which permit their exploitation, the flow of capital, the necessary technology therefore, and the protection of environmental values.

Transportation of unrefined oil or gas produced from a lease out of Puerto Rico shall be allowed only after it is established by the Secretary that such elaboration may not meet all the requirements of the Mining Law.

Section 6. Policy on Costs Recovery

Where government share dues are established in the lease in accordance with the Mining Law, such share shall be calculated in accordance with the Accounting Annex which forms part of the lease.

All recoverable costs have to be approved by the Secretary. The cost recovery procedure, the production sharing procedure, and the definition of recoverable and non-recoverable costs shall be established in the Accounting Annex to the lease.

Section 7. Policy on Price

The policy on price shall be established in the following manner:

(a) the hydrocarbons reference price shall be determined by the Secretary at the storage site or delivery or transfer point in the lease area and such price shall apply for the calculation of royalties, the government share dues in production, and such other payments established in the lease.

The price shall also apply to the delivery of petroleum or natural gas to consumers in the Commonwealth. The lessee shall be free to sell petroleum and natural gas to other consumers for such prices as are deemed appropriate by the lessee.

(b) the hydrocarbons reference price for petroleum shall be the international market price, on the basis of published information in regular international journals, taking into account official export prices for crude oil in the world, spot prices, and the applicable differentials for transport, quality and market conditions, provided, however, that the price of petroleum sold to Puerto Rican consumers shall be based on the international value on the Island, of oil products, less a reasonable margin for refining costs.

The price determined for Puerto Rican consumers, in any case, shall not be less than 5% below the international market price established in accordance with this section.

(c) the hydrocarbons reference price of natural gas shall be determined on an energy equivalent basis with petroleum in such a manner that the price of natural gas at the main distribution terminal in or near San Juan shall be 60% of the international market price for petroleum established pursuant to section (b) of this Article.

CHAPTER 7. TRANSFER, ANCILLARY RIGHTS AND INSPECTION

Section 1. Assignment or Transfer

No permit or lease shall be assigned, transferred, sublet, or disposed of except with the prior consent, in writing, of the Secretary and upon payment of a fee in the amount of \$5,000 dollars except that no fee will be required for an assignment to an affiliate of the permittee or lessee, or to a legitimate heir of the descendant.

Section 2. Ancillary Rights and Easements

(a) Every permit and lease shall include such ancillary entrance and exit rights, rights to occupation and modification of the surface, rights to construct improvements and roads, and or other rights and easements as shall be necessary for the effective use and utilization of the rights conferred thereby respecting the exploration for and extraction of oil and or gas.

The permittee or lessee shall pay such compensation to the surface owner in respect to the exercise and enjoyment of such ancillary rights and easements as shall be mutually agreed upon, or, in the absence of such agreement, as the Secretary shall determine the amount to be payable pursuant to ss 5 (A) and 6(B) (10) of the Mining Law.

Section 3. Inspections and Examination

The Secretary or any person authorized thereby, may enter upon presentation of credentials evidencing his authority, the area covered by any permit or lease, as well as the business office, of lessee, and inspect and audit all wells, technical and financial records, plant and equipment at any reasonable time and in such manner as may not be detrimental to the operations being performed, and the permittee or lessee shall render such assistance as may be necessary or essential.

Any person so authorized, shall have the right to take samples and copies of records and to carry out any tests or examinations he desires provided that all such information, and results shall be retained on a confidential basis by the Secretary unless disclosure thereof is required in any proceeding by the Secretary or the Commonwealth against the permittee or lessee.

Nothing in this section shall be deemed to preclude the Secretary from auditing any financial or production records dealing with activities during a period of time with respect to which the Secretary has any rights not barred by applicable law.

No person subject to the provisions of the Mining Law or these regulations shall dispose of, destroy or remove from Puerto Rico any financial or production records maintained for the purpose of determining any payments or other rights under a permit, lease or contract without the prior written consent of the Secretary.

Section 4. Inspection of Suppliers and Contractors

A lessee shall provide that the rights of audit, inspection, and examination under Section 3 above, be made a condition of procurement upon every contractor and supplier from whom lessee obtains goods or services, in order that the costs of such goods or services may be offered by lessee as costs of prospecting, exploration, development, or operation of a lease; except that rights to audit, examination, or inspection of records, plan and equipment, will not be required in the case of procurement from a licensed or regulated supplier of identical goods or services to the general public, beyond reasonable requirement to establish the valid costs.

CHAPTER 8. EXPLORATION ACTIVITIES AND WELL DRILLING ONSHORE

Section 1. Conduct of Exploratory Drilling Operations

A lessee shall commence and continue drilling operations within the time limits prescribed in the lease, and in the manner prescribed in the lease, these regulations, the drilling permit, and any special orders, rules, or regulations issued by the Secretary.

Section 2. Drilling Permit

Before any lessee shall commence the drilling or deepening of any well, he shall submit to the Secretary an application for a permit to drill or deepen on the proper form. The lessee also shall submit a proposed well and drilling program, including the following items:

(a) A brochure describing all the principal components of the drilling rig and drill strings.

(b) A complete description of the blowout preventer stack and associated well control equipment, including any early warning and alarm devices and instruments.

(c) A complete description of the mud handling, mixing, storage and disposal facilities.

(d) The proposed total depth.

(e) Hole size and casing program for each separate segment of hole geometry. The casing description shall include the size, weight, grade, type of end connection, and length for each segment.

The design factors for collapse, burst and tension shall also be shown. In the case of wildcat wells, considerable modification for original casing string designs may be required in order to conform with the requirements mandated by downhole conditions and stratigraphy.

Such modifications shall be made in conformance with currently accepted industry practices and design factors.

(f) Casing cementing programs for each string of casing.

(g) Drilling fluid program.

(h) For vertical holes, the hole deviation limits and deviation control program.

(i) For directionally deviated holes, the entire

directional program, including plan and profile drawings.

(j) Coring program.

(k) Well control equipment testing program.

(l) Provisions for emergency shut-in in the event of storm, flood, earthquake or other events bringing control of the well into question.

(m) Provisions for plugging and sealing the well, if abandoned.

(n) Such other items as may be required by the Secretary.

Section 3. Granting of Drilling Permit

The Secretary may grant to the applicant a drilling permit, if the Secretary is satisfied that the application is in order and that the applicant will comply with all Commonwealth laws and regulations which may affect the drilling operations.

Section 4. Limitation of Drilling Permit

(a) The permit to drill or deepen a well shall be for one well only and shall expire upon completion of the project when the well is either cased for production or plugged and sealed for abandonment in accordance with the appropriate provisions of this chapter.

(b) The permit to drill or deepen shall be suspended, without completion of the drilling, in the event of termination of operations due to storm, flood, earthquake, blowout or escape of drilling fluids, water, oil, gases or other fluids from the hole.

The Secretary may reactivate the permit in these cases, without a separate application, upon determination that it is safe to proceed, or upon specification of additional conditions to the drilling to insure that it is safe to proceed.

(c) The drilling permit under this chapter shall not in itself constitute any authority to withdraw, use or permit the escape of ground waters from a well. Unless otherwise provided for, all wells to be abandoned shall be sealed to prevent their future use for water withdrawals, escapes, or flows within the earth.

Section 5. Identification of Wells

Every person drilling for oil or gas, or drilling

stratigraphic holes deeper than 200 meters related to oil and gas exploration in the Commonwealth, shall keep posted in a conspicuous place near the well a notice of emergency contact, stating the well designation and a telephone number for emergency notification in accordance with the contingency plans for the operation. The posting shall be legible at either 100 meters or the point of nearest public access to the operations, whichever is greater.

Section 6. Well Records and Logs

(a) During the drilling of every well, the owner, operator, contractor, driller, or other person responsible for the conduct of drilling operations shall keep at the well a detailed and accurate record of the well and operations on the appropriate daily report form specified by the International Association of Drilling Contractors. This form shall be filled out as completely as possible for each tour.

If the report of any operation should require more space than is available, the form shall be supplemented by a separate detailed write-up. These reports shall be accessible to the Secretary or his agents at all reasonable times and copies shall be furnished to the Secretary at the end of each and every week during the course of the drilling operations.

(b) If a mud logger is in use, the Secretary shall be furnished with current copies of the mud log at the end of each week during the drilling operation.

(c) When wire logs are run, the Secretary shall be furnished with field prints as soon as is practicable after logging is completed.

(d) Final copies of all logs and other wire line surveys shall be furnished to the Secretary within one month after completion.

Section 7. Samples and Cores

(a) Unless otherwise directed by the Secretary, in any exploration or stratigraphic test hole each permittee or lessee shall cause to be taken, preserved, and maintained a series of samples.

Samples shall be taken at interval depths of 30 feet from surface coring until rates become sufficiently slow to permit collecting samples at 10-foot intervals. Thereafter, samples will be taken at interval depths of 10 feet in accordance with the best current industry practice of the various formations which any non-coring drilling penetrates in drilling.

(b) It shall be the policy of the Commonwealth to

require that a core sample be taken, preserved, and maintained during exploratory drilling into geologic formations for which little or no information is otherwise available. The zones from which core samples are to be taken shall be designated in the drilling permit.

However, the Secretary or authorized representative may verbally waive the requirement to take a core sample if the designated zone is found to be pressurized in excess of lithostatic pressures, or if the operator encounters other conditions rendering core sampling unsafe. Any verbal waiver shall be documented within one working day.

(c) All cores taken from the core barrel shall be released in book fashion in to core boxes and accurately labeled on the body, not the lid, of each box as to the number and interval of the core, top, bottom, and percentage recovery of the core and the name of the well or stratigraphic test hole from which the core is taken.

(d) Boxes shall be of sturdy construction. The sides of the boxes shall project above the level of the contained cores and lids shall be securely fixed to ensure safe transit. Such boxes shall not exceed 3 feet in length.

(e) Reasonable steps shall be taken to protect boxes containing the cores from theft, misplacement, or exposure to the weather. A reasonable time shall be afforded the permittee or lessee to carry out examinations and obtain core analyses. Upon request of the Secretary, cores shall be slabbed longitudinally and one-half thereof forwarded prepaid to the Department of Natural Resources.

(f) The lessee shall retain and store all cores in a secure facility in the Commonwealth provided that such portions thereof as are reasonably necessary for analytical purposes may be transported out of the Commonwealth if facilities for analysis are not available in the Commonwealth and provided further that if the Secretary directs no other disposition within two years of the coring, the lessee may forward cores to the Secretary prepaid.

(g) If required to do so by the Secretary at the time of issuance of a drilling permit, the permittee or lessee shall, when an exploration well or test hole being drilled encounters formation of potential oil or gas production, core and adequately test such formation. Such coring and testing shall be conducted in a manner which is reasonable and proper in the judgment of the operator and not detrimental to the operations being performed, and such hole must be in proper condition before coring or testing is performed.

Section 8. Confidentiality

The Secretary may grant confidentiality to all well reports, mud logs, wireline logs and surveys, cuttings, cores and other information submitted by a lessee, if the lessee so requests in writing, and upon a determination that further exploratory work of value will be undertaken, for a period not to exceed five (5) years after the submission of the items for which confidentiality is requested.

Section 9. Oil, Gas and Water to be Protected

(a) Protection of Fresh and Artesian Waters.

All fresh and artesian waters of present or probable future value for domestic, municipal, commercial, stock, or agricultural purposes shall be confined to their respective strata and shall be adequately protected. Special precaution shall be taken in drilling and abandoning wells to guard against any loss of water from the strata in which it occurs, and the contamination of surface or ground water by objectionable water, oil, or gas.

(b) Special Precaution for Perched Saline Waters.

Boring or drilling through a confining or barrier formation which is perching saline waters shall be avoided to the greatest extent possible. The Secretary may require special casing and cementing programs for any well or boring which is permitted to penetrate formation for saline waters. Such special programs may include, but not be limited to:

- i) A cemented annulus through the entire saline section;
- ii) Full cementing of the well through the perching formation upon abandonment or completion of use.

Section 10. Blowout Prevention

(a) All proper and necessary precautions shall be taken to maintain control of the well to prevent the escape of drilling fluids, oil, gas, water or brines from the well. The minimum required in the blowout preventer stack shall consist of one set of pipe rams, one set of blind rams, and one annular type preventer, with tandem valves on all outlets and provisions for a kill line. All preventers shall be equipped for hydraulic operation, and the ram-type preventers equipped for manual closing as a backup.

(b) Appropriate associated equipment shall include the following:

- i) Hydraulic accumulator closing unit.

- ii) Double wing choke manifold with at least one variable choke.
- iii) A desasser of a design acceptable to the Secretary.
- iv) Appropriate valving, piping, flow lines, and gauge connections.

(c) All components of the blowout control system shall be of sufficient rating to withstand the highest pressure which may be encountered during the drilling of the well.

(d) A test plug shall be provided so that the entire blowout prevention system may be pressure tested to rated working pressure immediately after installation and before drilling is resumed. Additional periodic pressure tests may be specified by the Secretary.

(e) The proper functioning of the pipe rams and the annular preventer shall be checked at 24-hour intervals when pipe is in the hole. The blind rams shall be checked after each trip out of the hole. The easy operation of all system valves shall be checked at least weekly. A report of all checks shall be recorded in the daily drilling report.

(f) Early warning devices shall be checked daily to insure that they are functioning properly.

(g) Each crew man on every crew shall be instructed and trained as to what actions he should take in the event of a well kick or other emergency.

Section 11. Drilling Fluids

(a) Before commencing to drill a well, lessee shall have available equipment and facilities for the reception, mixing, storage, and ultimate disposal of mud or mud components proper and adequate to insure that:

- i) Muds or mud components are not discharged to surface or ground waters during or after the completion of drilling to any degree greater than that accepted as necessary in the permit, lease, or drilling application;
- ii) Muds or mud components are not discharged to surface or ground waters as a results of fluvial runoff, or flooding.

(b) The components of the muds used which may be toxic, caustic, corrosive, or otherwise deleterious if discharged to the environment, shall be displayed in the application for a drilling permit.

(c) During the drilling of any well, the lessee shall insure drilling fluid of sufficient density to control pressures which may normally be encountered is continuously maintained in the hole, from top to bottom. Upon any evidence of intrusion of formation fluids into the wellbore, short of a well kick, the fluid weight shall be increased to a level high enough to inhibit this intrusion.

(d) The rheological properties of the mud shall be controlled so as to lessen the chances of loss of circulation.

(e) A complete mud check shall be run at least daily, and the results recorded on the appropriate API-approved form. Copies of these forms shall be sent to the Secretary weekly. The weight and funnel viscosity of the mud shall be measured at least each tour, and the results recorded on the daily drilling report.

(f) Mud mixing facilities shall be adequate to maintain the conditioning of the fluid prior to injection in the well. No component which could be toxic, corrosive, caustic, or otherwise deleterious if discharged to the environment, shall be added to the drilling fluid, if such use has not previously been indicated in the drilling permit application, except upon written approval by the Secretary.

Section 12. Deviation Tests

(a) All wells, other than wells which are intentionally deviated, must be drilled with due diligence to maintain a reasonably vertical well bore. Conventional non-directional slope tests shall be run at approximately 500-foot intervals, or more frequently if excessive deviation tendencies are indicated.

(b) Except as provided in Chapter 5, Section 6, no well intentionally deviated may pass through the vertical plane extending downward from the boundaries marked off in the lease.

The Secretary shall have the right to make or require the lessee to make a directional survey of the hole prior to the completion of the well.

Section 13. Drill Stem Tests

(a) In the case of open hole drill stem tests, unless otherwise approved by the Secretary, the test tool shall not be opened until after daylight and shall be closed and the packer unseated before dark of the same day.

(b) Inside-casing drill stem tests may be extended overnight, but must be initiated and terminated during

daylight hours only.

Section 14. Casing Strings

All casing strings shall be set and cemented in accordance with the plans submitted with the drilling permit application, or amendments thereto which have been approved by the Secretary.

A complete description of each casing job shall be included with the daily drilling report specified by Section 7 of this chapter.

Section 15. Wellhead Equipment

Casing head housings, casing spools, and associated valves and fittings installed during drilling shall be adequate to withstand the maximum pressures to which they might be exposed.

Section 16. Wells to be Completed

(a) If, after the conclusion of drilling and open-hole evaluation, a well appears to be capable of commercial production, the production casing string shall be set and cemented as specified by the drilling plan or as modified and approved by the Secretary.

(b) Refer to Chapter 9. for regulations covering the completion process.

Section 17. Well to be Abandoned

(a) If the evaluation of a well which has been drilled in accordance with all requirements of the drilling permit and representations of the drilling permit application shows no evidence of commercial production, the operator shall give notice to the Secretary of intent to abandon.

(b) The notice of intent to abandon shall be accompanied by an abandonment program, which shall be designed to prevent the possibility of any migration of any formation fluids in the well bore after the well has been permanently sealed.

(c) In the interest of time, the Secretary may verbally approve the plugging plan, and upon receiving such approval, the operator may proceed with the abandonment operations. The Secretary may send a duly authorized representative to the location to witness and approve the plugging procedures.

(d) The methods and procedures for plugging a well shall be in accordance with the plugging program as approved by the Secretary, and shall conform with the highest then current standards of the oil and gas industry.

(e) All permanently abandoned wells shall be plugged as soon as possible, but in any event not later than thirty (30) days following abandonment, unless prior arrangements have been made with the Secretary. Situations for which prior arrangements can be made include, but are not limited to:

- i) The operator wishes to retain the well for seismic refraction studies, monitoring, injection, or future production, and makes arrangements for future abandonment;
- ii) The landowner wishes to convert the well to other uses, and is determined by the Secretary to be able to accept responsibility and liability for the well;
- iii) The Commonwealth wishes to retain the well, and arranges a transfer of rights, responsibilities, and liabilities from the operator.

(f) Within thirty (30) days after the plugging of any well, the owner or operator thereof shall file with the Secretary a statement in writing setting forth in detail the procedures and results of the plugging operation.

Section 18. Clean-up and Restoration of Drilling Site

After moving out the drilling rig and all equipment, the operator shall clean up and restore the drill site in a manner satisfactory to the Secretary, environmental authorities, and the landowner.

Section 19. Wells Used for Fresh Water

(a) When the well to be plugged may safely be used as a fresh water well, and such utilization is desired by the landowner, such usage may be approved by the Secretary, provided that the landowner or water user has completed an agreement to accept responsibility and liability for all operations in completing a water well.

(b) After spotting the last plug to isolate the fresh water zones from all lower strata, the operator shall be relieved of all responsibility and liabilities for the hole except for the removal of the drilling equipment and the clean-up and restoration of the well site.

CHAPTER 9. WELL COMPLETIONS - ONSHORE

Section 1. Zones Having Productive Possibilities

Before completion work is started, the lessee shall furnish to the Secretary a description of the zone or zones of interest along with all the evaluation data from samples, cores, wire line logs, mud logs, or other sources obtained while drilling.

Section 2. Completion Plan

Also before completion work is started, the lessee shall include the following:

- (a) Inside-casing logging plans for cement bond logs, gamma correlation logs, and other logs, if planned.
- (b) Description of the completion fluid or fluids to be used.
- (c) Perforation interval or intervals.
- (d) Inside-casing drill stem tests or other production testing procedures.
- (e) Dual completion possibilities.
- (f) Downhole equipment, such as screens, packers, seating nipples, landing nipples, side door chokes, sliding sleeves, automatic safety valves, etc.
- (g) Description of tubing string, including size, weight, grade, and end connections.
- (h) Description of wellhead equipment, including tubing spool and hanger, Christmas tree, chokes and automatic safety shut-off valves.
- (i) Well cleaning and final testing plans, including provisions and facilities for the storage and/or disposal of all fluids recovered.
- (j) Description of blowout prevention equipment.
- (k) Provisions for emergency shut-in in the event of storm, flood, earthquake or other events bringing control of the well into question.
- (l) Other such items as may be required by the Secretary.

Section 3. Approval of Completion Plan

If the Secretary is satisfied that the plan is in order, in the interest of time, verbal authorization to proceed with the completion program may be given, but written approval shall follow in the due course of business.

Section 4. Completion Records and Logs

(a) Detailed daily reports of all completion activities shall be kept at the well. These reports shall be accessible to the duly authorized agents of the Secretary at all reasonable times, and copies shall be delivered to the Secretary weekly.

(b) Field copies of all wire line logs shall be given to the Secretary as soon as is practicable after the logs have been run.

Section 5. Blowout Prevention Equipment

(a) The blowout preventer stack shall consist of at least one (1) set of pipe rams and one (1) set of blind rams, which shall have a working pressure rating at least as high as the greatest pressure which could be expected at the surface.

(b) The choke manifold, valves, and lines also shall have a pressure rating adequate for the highest expected pressures.

Section 6. Completion Fluids

(a) The completion fluids shall be of sufficient density to control the well at all times during the completion process.

(b) The fluid chemistry shall be designed to inhibit formation damage to the greatest extent possible.

(c) Facilities shall be available for the storage, handling, and circulation of the completion fluids, as well as formation fluids, sufficient to prevent the spillage or other events which might contaminate the environment.

(d) Arrangements for the final disposal of all fluids, acceptable to the Secretary, shall be made before the well is perforated.

Section 7. Wellhead Equipment and Christmas Tree

(a) All components of the completion wellhead assembly, from the tubing spool through the Christmas tree, shall have a working pressure rating equal to or greater than the maximum expected shut-in surface pressure or the maximum applied treating or stimulation pressure, whichever is the

greater.

(b) If the shut-in wellhead pressure will exceed 2,000 pounds per square inch, the Christmas tree shall be equipped with dual tandem master valves.

(c) On all flowing wells the Christmas tree shall be equipped with an automatic pressure-actuated high-low shut-off valve, unless otherwise approved by the Secretary.

Section 8. Tubing Strings

(a) The size, weight, grade, and connections and performance properties of the tubing to be used must be adequate to minimize the possibility of tubing leaks or failures under the depth, pressure, and temperature environment to which it may be subjected.

(b) If down-hole pressures in excess of 3,000 pounds per square inch are expected, each tubing connection shall be pressure tested at the surface to the maximum expected pressure while the tubing is being run.

Section 9. Down-Hole Equipment

(a) The design, type of material, and method of installation of all downhole equipment, such as packers, chokes, regulators, landing nipples, sliding sleeves, etc., shall be compatible with the depth, downhole environment, and service conditions under which it is expected to function.

(b) If conditions warrant, the Secretary may require that a subsurface automatic shut-in valve be installed in the tubing string.

Section 10. Drill Stem Tests

(a) Inside casing drill stem tests shall be initiated only during daylight hours. If no apparent hazard exists, the test may be of sufficient duration to obtain all pressure and flow rate data which may be required for reservoir evaluation, but a test may not be terminated or the packer unseated except during daylight hours.

(b) When a drill stem test packer is being pulled, special attention should be given to insure that on fill-ups the hole is taking the required amount of fluid as each stand of pipe is pulled.

Section 11. Swabbing

(a) No well shall be swabbed except during daylight hours.

(b) During swabbing, surface packoff devices shall be used to prevent the escape of fluids.

Section 12. Migration and Commingling of Formation Fluids

(a) Before any oil or gas well is completed as a producer, all oil, gas, and water strata above and below the producing stratum shall be sealed or separated in order to prevent their contents from migrating into the well bore or into other strata.

(b) No well shall be permitted to produce oil or gas simultaneously from different strata through the same string of casing or tubing except by permission of the Secretary.

Section 13. Dual Completions

(a) No well shall be completed with the casing open to one stratum and the tubing open to another, or with double packers and separate tubing strings open to separate strata, without a permit granted by the Secretary.

(b) In order to obtain a dual completion permit the operator shall furnish the Secretary a diagram of the proposed downhole installation.

Section 14. Well Stimulation

Plants for acidizing or other stimulation treatments during the completion process will require the approval of the Secretary before the treatment is started.

Section 15. Well Cleaning

Before a well can be cleaned, all facilities necessary for the containment and disposal of all well bore fluids shall be installed.

Section 16. Final Completion Report

Within thirty (30) days, unless a time extension is granted by the Secretary, the operator shall file with the Secretary a final completion report, which shall include descriptions of all work done and equipment used, supplemented by diagrams where necessary for clarity, copies of all inside-casing logs, copies of the well potential reports, and such other items as may be required by the Secretary.

CHAPTER 10. OIL AND GAS DEVELOPMENT - ONSHORE**Section 1. Initial Reservoir Evaluation and Delineation Plan**

(a) Upon completion of a discovery well which appears to warrant further evaluation and delineation of the producing or potentially productive reservoirs, the lessee and the Secretary shall agree on a plan designed for this purpose.

(b) At a minimum, the initial plan shall indicate:

- i) The probable optimum eventual well spacing, depending on whether the reservoir hydrocarbon is oil or gas, the reservoir depths, the productive capacity of the discovery well, and the probable cost of completed wells.
- ii) The spacing of step-out wells to expedite reservoir delineation.
- iii) The design and location of initial field processing and production tank battery facilities.
- iv) A plan for marketing or developing markets for the hydrocarbons produced so that wells can be produced shortly after being completed in order to obtain draw-down data for additional reservoir information.
- v) A drilling time schedule which shall specify the maximum permitted lapse of time between the completion of one well and the spudding of the next.

(c) If modifications of the initial plan are indicated before the delineation process is completed, the operator and the Secretary shall agree on all changes to be made.

Section 2. Development and Exploitation Plan

(a) As soon as the evaluation and delineation program indicates the existence of a commercial field in the opinion of the Secretary, the operator and the Secretary shall negotiate and prepare a long range development and exploitation plan for the field. Such plan shall be subjected to the environmental impact statement process, and may provide for alternatives to meet future or contingent conditions not known at the time of preparation of the plan.

(b) Insofar as development operations are concerned, at a minimum the plan shall indicate:

- i) The well pattern and spacing for development wells.

- ii) Directional drilling provisions to comply with spacing requirements in the event that surface locations for all vertical wells are not available.
- iii) The number of drilling rigs necessary for timely development.
- iv) Design and location of production and field storage facilities.
- v) Necessary auxiliary and secondary facilities, including, but not limited to, waste treatment and disposal, power supply and material supply.
- vi) Field flow lines and transportation development plan.
- vii) Control procedures and safety plan for the field, including protective measures and contingency plans in the event of accidental discharges of pollution to the environment, or in the event of hazard to public safety.
- viii) If more than one reservoir exists in the field, an exploitation plan for each reservoir shall be prepared, including, but not limited to, the consideration of dually-completed wells.
- ix) A manpower plan, with emphasis on the employment and technical training of residents of the Commonwealth.
- x) If sufficient data are available, plans for reservoir pressure maintenance and secondary or tertiary recovery systems.

Section 3. Drilling Permits for Development Wells

(a) A drilling permit shall be required for each development well. The application for permit shall conform to the requirements of Section 2. of Chapter 8, with the following exceptions:

i) If the same rig and equipment as used in the drilling of the discovery well is to be used, items (a), (b), and (c) may be omitted.

ii) The expected depths of the intersection of the well bore with all formations from the surface to total depth shall be added. In the case of directional holes, both the measured depth and the true vertical depth shall be shown.

Section 4. Conduct of Development Drilling Operations

(a) The operator shall commence and continue drilling operations within the time limits prescribed in the development plan.

(b) The drilling of development wells shall be in accord with all the requirements of Section 4. through Section 20. of Chapter 8. Exploration Activities and Well Drilling - Onshore.

Section 5. Completion of Development Wells

The completion of development wells shall be in accord with all the requirements of Chapter 9. Well Completions - Onshore.

Section 6. Production of Development Wells

The production facilities and practices for development wells shall conform with all the requirements of Chapter 11. Oil and Gas Production Facilities - Onshore.

Section 7. Field Rules

At some point during development, it may be desirable for the Secretary and the operator to agree on special field rules to apply only to the field being developed.

Section 8. Other Obligations of the Operator.

The conduct of development activities shall not relieve the operator of other exploratory activities prescribed in the lease unless specific exceptions are granted by the Secretary.

CHAPTER 11. OIL AND GAS PRODUCTION FACILITIES - ONSHORE**Section 1. Specification for production equipment**

(a) The equipment for field processing and storage of production liquids shall conform with the specifications issued by the American Petroleum Institute. These include the following:

- Spec.12B, Specification for bolted tanks for storage of production liquids
- Spec.12D, Specification for field welded tanks for storage of production liquids
- Spec.12F, Specification for shop welded tanks for storage of production liquids
- Spec.12J, Specification for oil and gas separators
- Spec.12K, Specification for indirect type oilfield heaters
- Spec.12L, Specification for vertical and horizontal emulsion treaters

(b) Other equipment not covered by API specification, shall be of a design, materials and working pressure acceptable to the Secretary.

Section 2. Installation of Production Equipment

(a) The installation of field processing and storage equipment shall conform with API RP 12R1, Recommended Practice for Setting, Connecting, Maintenance and Operation of Lease Tanks.

(b) Any tank battery shall be surrounded by a fire wall capable of containing the volume of the largest tank plus 10 percent of the volume of all of the remaining tanks, or 35 percent of the total tankage, whichever is the greater. Fire walls shall have at least one drain opening with an operable valve. This valve shall be maintained in the closed position, and shall not be activated automatically by fluid level controls.

Section 3. Location of Production Facilities

(a) All production equipment and facilities shall be located in areas which, in the opinion of the Secretary, are sufficiently remote from dwellings, schools, churches, shopping centers, other public gathering places and public roads to minimize the possibility of hazards.

Section 4. Oilfield Sumps and Ditches

(a) Policy: Any sump used for the collection of waste waters, or as a contingency catch basin for oils, may not

rely upon evaporation alone for disposal of retained fluids. Because of the rainfall potential in Puerto Rico, it shall be assumed in design and operating planning that any such basin is capable of flooding and overflowing.

Any basin used for the entrainment of oil shall not be capable of automatic drainage without supervision.

Oil shall not be retained in sumps, other than tanks constructed to prevent or limit the evolution of hydrocarbon vapors into the atmosphere, for any period of time longer than necessary to correct the condition leading to the introduction of oil into said sump, and to properly dispose of or collect the oil.

(b) Location: Sumps for the collection of waste water and/or spills shall not be permitted in natural drainage channels for surface waters not originating upon the lease property.

Contingency catch basins may be permitted for drainage channels of waters originating upon the lease property, but such basins shall be evacuated and cleaned after any spill. Contingency catch basins located over freshwater aquifers may be required to be lined to prevent the percolation or infiltration of harmful waters into the aquifer.

(c) Construction: Sumps shall be designed, constructed, maintained and kept under surveillance, so as not to be a hazard to people, livestock, or wildlife, including birdlife.

(d) Protection: Any sump for the retention of waste waters, spilled oil, or for controlling the discharge of fluvial runoff, shall be fenced to protect people, livestock, wildlife, including birds, in accordance with Section 6 of this chapter.

A sump located upon a site enclosed by perimeter fencing may be required to be fenced separately if it is determined that a hazard to employees or to wildlife may exist.

(e) Oil Sumps of Immediate Hazard: If the Secretary determines that an oil sump constitutes an immediate or grave hazard, the Secretary shall forthwith give a written notice of such immediately dangerous condition to the person responsible and in the manner as set forth in Section 10 of the chapter. Conditions of immediate hazard shall include, but not be limited to:

- i) sumps of steep or slippery banks;
- ii) leaking sumps, or sumps with retaining walls in danger of collapse;

- iii) sumps which present more than a rare potential for entrapment of wildlife, with rare defined as more than any three days in a three year period;
- iv) any sump for which the protective measures are found to be lacking, or deteriorated, or faulty.

(f) Hazardous Oil Sumps: Whenever the Secretary determines that a sump may constitute a hazard in accordance with the conditions cited in (e) he shall forthwith give a thirty (30) days written notice of such hazardous condition to the person responsible and in the manner as set for in Section 10 below.

(g) Compliance with Notice of Hazard: When notice is given the person responsible for the existence of the conditions shall take all necessary steps at his own expense to clean up or abate the condition forthwith.

If notice is given pursuant to (f) above, the period to clean up or abate the conditions is thirty (30) days of notification.

Extension of the period for compliance may be for a longer period as mutually agreed upon in cases where the Secretary has determined that corrections cannot be reasonably accomplished within the period specified.

(h) Appeal: If the person responsible for the existence of the conditions and who has been given notice as set forth in this article disagrees for any reason with the proposed order, he may within five (5) days from the service of the notice request an administrative hearing before the Secretary. The Secretary, after at least ten (10) days written notice, shall hold a public hearing to hear the objections to the proposed action.

At the conclusion of the hearing, the Secretary may issue an order specifying the action to be taken.

(i) Channels: Open unlined channels and ditches shall not be used to transport waste water which is harmful to underlying freshwater deposits. Oil or water containing oil shall not be transported in open unlined channels or ditches unless provisions are made so that they are not a hazard as determined by the Secretary.

Section 5. Measures For Safety and Environmental Protection

(a) Fire Control:

- i) Fire extinguishers shall be located at all facilities which may be subject to an outbreak of fire. Additional necessary fire control equipment

shall be readily accessible.

- ii) In the event of a serious fire, control of which may be beyond the capability of field control personnel and equipment, local fire departments, the police, and other concerned officials shall immediately be notified.
- iii) If the fire poses a hazard to the safety of persons residing working, or otherwise engaged nearby these persons shall be evacuated.
- iv) If any oil or gas lines lead to, or are near, the site of a fire, valves on these lines shall be closed.

(b) Oilfield Facilities: Well cellars shall be covered and kept drained. Gratings or flooring shall be installed and maintained in good condition so as to exclude people and animals. Cellars should be protected from as much runoff water as practical.

- i) Production facilities, including but not limited to tanks, pipelines, flowlines, wellheads, and separators shall not have excessive leakage.
- ii) Other production facilities and equipment, including but not limited to pumping units, compressors, tanks, and skimming devices, shall be installed and properly maintained for the protection of people, wildlife, and domestic animals.
- iii) All equipment and facilities in urban areas shall be enclosed individually or with perimeter fencing in accordance with the provisions of Sections of this Charter, where necessary to protect life and property.

(c) Oilfield Wastes and Refuse

- i) Oilfields wastes, including but not limited to oil, water, chemicals, mud, and cement shall be disposed of in such a manner as not to cause damage to life, health, property, freshwater aquifers, surface waters, salt water bodies, or natural resources, or be a menace to public safety. Disposal sites for oilfield wastes shall also conform to regulations of the Environmental Quality Board.
- ii) Dumping harmful chemicals where subsequent rain waters might wash significant quantities into freshwaters shall be prohibited. Drilling mud shall not be permanently disposed of into open pits.

Cement slurry or dry cement shall not be disposed of on the surface.

- iii) Idle equipment, scrap, trash, and other wastes attendant to oilfield operations shall be disposed of or stored in such a manner as to not cause damage to life, property, or health, or detract from "aesthetic values", or be a menace to public safety. Junk casings, tanks, production equipment, and other oilfield scrap shall not be left in a disorganized manner so that they form a hazard.

(d) Abandoned Locations: Upon abandonment, well locations shall be graded and cleared of equipment, trash, or other wastes and returned to as near a natural state as practicable.

- i) Sumps shall be restored to natural grade after removal of harmful materials. Sumps below natural grade shall be filled with earth, and those above natural grade shall be eliminated by removal of the retaining walls. Previously abandoned locations shall be cleaned up whenever practicable. Where a temporary sump was put in a drainage channel, it shall be removed and its contents properly disposed of upon completion of operations.
- ii) Unstable slope conditions created at the location shall be corrected in such a manner as to prevent collapse of the slope. Silting of the runoff to a free-flowing stream, or a hazard to public roads from silting runoff shall be avoided. Exposed slopes shall be held by live and rooted flora, except for roadway or passadeway cuts.
- iii) Access roads to well locations generally will not be covered by these regulations; however, any condition that creates a hazard to public safety or property or causes interference with natural drainage will not be acceptable.
- iv) Upon application of the property owner, exceptions to the above can be made, provided good reason can be shown.

(e) Air Pollution:

- i) Harmful gaseous (poisonous or flammable) and noxious odors emitted as a result of the oilfield operations shall not be permitted if damage to life, health, property, or natural resources could occur, and all permittees and lessees shall comply with the regulations of the Environmental Quality Board applicable thereto. Any cases involving the

escape of natural gas will be under the Secretary's jurisdiction.

- ii) The development plan or re-development plan for oil and /or gas field production shall demonstrate that the most efficient and most advanced technological methods are incorporated to prevent the emission of hydrocarbon and reactive vapors, or smoke and particulates, into the atmosphere, in accord with the requirements of the Mining Law.
- iii) In estimating the emissions to the atmosphere from any process or operation, an operator may rely upon previous determinations of the manufacturer of equipment, or upon determinations of oil industry groups such as the American Petroleum Institute, which have been accepted by the Environmental Protection Agency, or the environmental Quality Board. Every operator, having supplied such estimates, shall be responsible for operating said equipment or process in such manner that the estimates are not exceeded.

Section 6. Enclosures

Oilfield facilities and equipment shall be enclosed to prohibit or restrain access to protect life, property, livestock, and wildlife, as may be deemed necessary. The development plan for the facility shall specify the degree of security provided, and the type of fencing to be used. Standards for enclosures shall be, at a minimum, as follows:

(a) Chain Link Fences. All chain link fences shall be constructed to meet the following specifications:

- 1) Fences shall be not less than five (5) feet high and mounted on one and one-quarter inch (1-1/4") diameter steel posts with at least three strands of barbed wire mounted at a 45-degree angle from the top of the fence.
- 2) The fence shall be constructed of chain link or other industrial-type fencing of not less than eleven gauge wire and of not greater than two-inch nominal mesh.
- 3) Supporting posts shall be securely anchored to the surface, spaced no more than fourteen (14) feet apart. Provisions for removable posts may be approved provided that the fence anchors be an integral part of the fence.
- 4) Tension wires of at least No. 9 gauge coil spring, or equivalent, shall be stretched at the top and

bottom of the fence fabric and shall be fastened to the fabric at twenty-four (24) inch intervals. There shall be no aperture below the fence large enough to permit any child to crawl under.

(b) Wire Fences. All wire fences shall be constructed to meet the following specifications:

- 1) There shall be either four strands of barbed wire spaced (12) twelve inches between strands and maintained with sufficient tension to preclude sagging or commercial livestock wire netting with a minimum height of four (4) feet and sufficient tension.
- 2) Posts may be of any material of sufficient strength and rigidity to support the wire and restrain people or livestock from pushing over. Posts shall be set no more than ten (10) feet apart and buried at least twelve (12) inches into the ground.

(c) Masonry walls. All masonry walls shall be constructed with standard engineering practices and meet the following specifications:

The walls shall be at least five (5) feet high and topped with three strands of barbed wire with appropriate supports mounted at a 45-degree angle.

(d) Gates. Gates shall be of a structure substantially the same as the required fences and shall be kept secured when not attended by an adult.

(e) Screenings. All screenings shall meet the following specification:

- 1) Be not greater than two-inch nominal mesh.
- 2) Be of sufficient strength to restrain entry of wildlife.
- 3) Be supported in such a manner so as to prevent contact with the sume fluid.

(f) Other types of enclosures. Any equipment or facility which is enclosed in such a manner as to be substantially the same as outlined in (a), (b), (c), (d), and (e) above may be approved by the Secretary.

Section 7. Special Requirements

(a) The Secretary shall have the complete authority to set forth other procedures where justified, or where mandated to meet other Commonwealth requirements, public needs, and

interests.

Other Commonwealth requirements, public needs, and interests, shall include, at a minimum, zoning and uses of neighboring areas, public safety, noises, and visual aspects of the operation. Other procedures may include, but not be limited to :

- i) Height limitations, and covering of structures;
- ii) Visual screening other than masonry walls;
- iii) Planting or erection of noise barriers;
- iv) Security staffing;
- v) Fencing, lighting, and access registration.

(b) Enclosure of temporary operations, defined for the purposes of this Section 6 as less than six months, which does not meet the specifications of Section 6 (a) - (e) above, may be approved by the Secretary upon demonstration that all of the objectives of this Section and of Section 6 with respect to protection of the public, property, livestock, and wildlife, can be met. Criteria which may be considered for such approval may include, but not be limited to:

- i) Availability of materials in Puerto Rico;
- ii) Costs;
- iii) Substitution of security staffing for security installations.

Section 8. Other Regulatory Agencies

These regulations do not supersede any rule, regulations, procedures, or orders of other governmental agencies, including other regulations of the Secretary for functions mandated by other than the Mining Law, except as explicitly and implicitly provided by the Mining Law.<

CHAPTER 12 OIL AND GAS PRODUCTION - ONSHORE AND OFFSHORE**Section 1. Production Tests for Oil Wells**

An operator completing a new oil well or putting an old oil well into production, which has been closed in one month or longer, shall test the well to determine whether the well is capable of producing and the amount it can produce. The test shall be taken in accordance with good industry practice unless the Secretary, by special order, prescribes a manner of testing.

The test results shall be filed with the Secretary within fifteen (15) days after the test is completed. Upon receipt of the report an allowable production will be assigned to the well. Until an allowable production is assigned, the lessee may produce at the maximum efficient rate.

Section 2. Production Tests for Gas Wells

(a) The testing of a gas well shall include a multipoint absolute open flow potential test run by one of the methods currently used in the industry and accepted by regulatory authorities, or by a specific method which may be directed by the Secretary.

(b) During testing, the quantity of the condensate produced with the gas shall be measured and reported as barrels of condensate per million cubic feet of gas produced.

(c) For the purposes of this chapter, the term "oil" also shall apply to condensate.

Section 3. Oil to be Measured

All oil as and when produced shall be adequately measured before the same leaves the lease on which it is produced unless, with the prior permission of the Secretary, it is measured at a facility common to another lease. Quantities of oil may be computed from meter readings or daily gauges, if sufficient tankage and separator capacity is available to take daily gauges accurately.

Section 4. Oil Measurements

(a) Unless metering is used, quantities of oil shall be computed from correctly compiled tank tables. The full percentage of B. S. and W. as shown by the centrifugal or other tests shall be deducted before making correction for temperature.

Corrections shall be made for temperature on the basis

of 60 F. in accordance with the Abridged Volume Correction Table for Petroleum Oils contained in the Supplement to the National Bureau of Standards Circular C-410 issued April 20, 1937, or on such other commonly accepted basis as the Secretary may stipulate.

(b) Combined Correction Tables for making both temperature and B. S. and W. correction at the same time may be used, if the combined tables are based on the abovementioned Abridged Volume Correction Table for Petroleum Oils, and if the factors are calculated in such a manner that they give the same results as would be obtained by making the temperature correction and the B. S. and W. deduction separately.

Section 5. Plant Project Permit Required

(a) Any person desiring to operate pressure maintenance plants, cyclining or recycling plants, gas return plants, a salt water disposal system, and other similar projects shall submit an application for a plant permit or disposal permit with the Secretary, who, upon receipt of same, may require that any potentially interested parties be notified of the application and of their right to request a hearing concerning it within thirty (30) days.

At the conclusion of the hearing, or if no hearing is held, after independently assessing the merits of an application, the Secretary may grant the permit on the terms he deems proper or deny it.

Section 6. Allowable Production

(a) The allowable production of oil or gas from any well or field shall be determined by the Secretary. Before establishing allowable production, the Secretary shall consider:

- 1) the technical characteristics of the well or field;
- 2) obtain the maximum efficient rate of production computed by lessee;
- 3) the internal demand of the Commonwealth, if applicable;
- 4) such other factors as the Secretary may determine relevant to his determination.

(b) In the event that the technical characteristics of a well or field may be asserted to control the tempo of allowable production to the exclusion of other factors of Section 6(a) above, the Secretary may require an independent

survey, modeling study, or further testing of the field to support this assertion.

The costs of such tests, surveys, or studies shall be treated in accord with Chapter 5, Section 3(d).

Section 7. Unitization

In order to promote and insure conservation and efficient recovery of oil and gas reserves, and in the absence of an agreement among lessees, which has been approved by the Secretary, the Secretary may prescribe a unit plan for the development and operation of a field, reservoir, or any part of the lease area, which plan shall allocate benefits and costs equitably among the lessees.

CHAPTER 13. OFFSHORE DRILLING

Section 1. Purpose.

It is the purpose of this chapter to set forth the rules and regulations governing the drilling of offshore exploratory, oil, or gas wells.

The Secretary shall fix standards for the drilling of all wells and the abandonment of dry holes to prevent, as far as possible, damage to life, health, property, and natural resources, damage to underground oil and gas deposits from infiltrating water and other causes, loss of oil, gas, or reservoir energy, and damage to underground waters suitable for irrigation or domestic purposes by the infiltration of, or the addition of, detrimental substances by reason of the drilling operation or abandonment of wells.

Section 2. Scope of Regulations

These regulations shall apply to any and all drilling operations conducted from locations within the offshore jurisdictional boundaries and inland bays of the Commonwealth, and, where in conflict, these regulations shall supercede any and all general rules, regulations, and requirements pertaining to the operations previously stated.

Section 3. Revision of Regulations

(a) Because of the rapid changes in the state of the art in offshore drilling, continual modification or augmentation of these regulations may be required in order to insure that the equipment, technology, and practice used are the best available at the time.

(b) Revision of the regulations shall be carried out in accordance with the provisions of the Mining Law.

(c) The Secretary, as the need may arise, may issue emergency orders altering or suspending the existing regulations, or act in the absence of regulation, only within the charter mandated by Mining Law, to protect the interest of the Puerto Rican People in the commercial minerals belonging to them, to prevent waste, to prevent loss of life and property, and to protect the environment. Any such emergency order shall not constitute a general revision of these regulations.

(d) In such cases that the regulations herein as adopted and approved admit of review, or require continual review under provisions for adoption of best available technology,

the issuance of new requirements or standards of performance shall not constitute a revision, adoption or amendment of the regulations.

Section 4. Incorporation by Reference

(a) Any documents or parts therein incorporated by reference herein are made a part of this regulation as though set out in full.

(b) Any document incorporated by reference with respect to Section 4(a) above may be replaced only under the conditions of Section 3(c) above without recourse to the public review procedures of Section 3(d) above.

Section 5. Application for Drilling Permit

Before any lessee shall commence the drilling of any offshore well, he shall submit to the Secretary an application for drilling permit on the proper form prescribed by the Secretary.

In addition to the latitude and longitude of the surface location and the proposed total depth, the form shall show the water depth, the nearest distance and direction to the shoreline, the distance and direction to the nearest onshore city or town, the proximity to shipping lanes, ship channels, buoys, or other marine facilities or installations, and the proximity to any existing nearby wells.

If the hole is to be deviated, it also shall show the location of the bottom of the hole with respect to the surface location.

The lessee also shall submit a proposed well and drilling plan which shall include, but not be limited to, the following:

(a) A brochure describing the type of rig, all principal rig components, the storage capacity for fuel, water, cement and mud components, and the drill string.

(b) A description of all support facilities, such as work boats, personnel boats, fuel transport boats, helicopters, service company equipment, catering facilities, etc.

(c) A description of the well control and blowout prevention system.

(d) Plans for well control and blowout prevention, including control methods, duties, training, and supervision of personnel, and schedules for testing and drills.

(e) A description of the well monitoring and early warning devices specified later in this chapter.

(f) A description of the mud handling, mixing, liquid mud storage, and mud disposal facilities.

(g) Hole size and casing program for each separate segment of hole geometry. The casing description shall show the size, weight, steel grade, type of end connection, length, and design factors for collapse, burst, and tension for each segment.

In the case of exploratory wells, considerable modification of the original hole and casing program in order to conform with requirements mandated by subsurface conditions and stratigraphy may be required. Such modifications shall be made with currently accepted industry practice and design factors acceptable to the Secretary.

(h) Casing cementing programs for all casing strings.

(i) Drilling fluid program.

(j) Coring program.

(k) For vertical holes, the hole deviation control program.

(l) For directional holes, the entire directional program, with both plan and profile drawings.

(m) Oil spill and pollution control contingency plans.

(n) Provisions for emergency shut-in in the event of storm, earthquake or other events bringing control of the well into question.

(o) Plans for moving or evacuating the rig in the event of a severe storm threat.

(p) Evacuation plans in the event of an uncontrolled blowout or fire.

(q) Provisions for plugging and sealing the well, if abandoned.

(r) Other items which may be specified by the Secretary.

Section 6. Granting of Drilling Permit

The Secretary may grant to the applicant a drilling permit, if the Secretary is satisfied that the application is in order and that the applicant will comply with all Commonwealth and other regulations which may affect the

drilling operations.

Section 7. Approval of Program Alterations

(a) If, in the opinion of the operator, it is necessary or advisable to depart from any plans or programs previously approved by the Secretary, written approval of the Secretary is required, except in cases where such operations are immediately necessary to avert a threat to life, health, property, or natural resources, or when approved operations are in progress, and newly discovered well conditions are such that immediate corrective measures are advisable.

In these cases, verbal approval may be granted, but only after the operator has provided the Secretary with all information pertaining to the condition of the well. Any verbal authorization by a representative of the Secretary shall be documented within one working day.

(b) Notwithstanding Section 7(a) above, the operator shall act immediately to correct a condition which creates an immediate danger to life, health, property, or natural resources and shall immediately notify the Secretary of the condition and the action taken to correct it.

Section 8. Well Identification

(a) The number or designation, which includes the lease name when used, by which a well shall be known is subject to the approval of the Secretary and shall not be changed without the written consent of the Secretary.

(b) Signs identifying the operator and the well with letters and figures not less than 12 inches in height shall be affixed to opposite sides of the rig in such a manner as to be visible and legible from off the vessel or platform.

Section 9. Well Records and Logs

(a) During the drilling of every well, the owner, operator, contractor, driller, or other person responsible for the conduct of drilling operations shall keep at the well a detailed and accurate record of the well and operations on the appropriate daily report form specified by the International Association of Drilling Contractors.

This form shall be filled out as completely as possible for each tour. If the report of any operation should require more space than is available, the form shall be supplemented by a separate detailed write up.

These reports shall be accessible to the Secretary or his agents at all reasonable times and copies shall be furnished to the Secretary at the end of each and every week during the

course of drilling operations.

(b) If a mud logger is in use, the Secretary shall be furnished with current copies of the mud log at the end of each week during the drilling operation.

(c) When wire line logs are run, the Secretary shall be furnished with field prints as soon as is practicable after logging is completed.

(d) Final copies of all logs and other wire line surveys shall be furnished to the Secretary within one month after completion.

Section 10. General Requirements for Drilling Operations

The Secretary's approval of drilling operations is contingent upon the following:

(a) The continual fulfillment of all marine and pollution control requirements established by the U.S. Coast Guard and the Commonwealth.

(b) All operations are conducted in a proper and workmanlike manner in accordance with the highest then current standards of oil and gas field practice.

(c) Adherence to well control plan specified by Chapter 13, Section 5(d).

(d) A copy of operator's proposal and subsequent approval of proposed operations is available at well site.

(e) Oil spills or slicks are reported to the agencies as specified in any Commonwealth Oil Spill Contingency Plan designated by the Secretary, and additionally as specified in the National Oil and Hazardous Pollution Contingency Plan, whenever such requirements do not coincide.

(f) Blowouts, fires, hazardous gas leaks, disasters, major accidents, or similar incidents occurring during drilling operations are reported to the Secretary immediately.

(g) Representatives of the Secretary are given adequate prior notice of the scheduling of all operations to be witnessed by the Secretary's representatives.

Section 11. Suspension of Drilling Permit

The drilling permit shall be suspended in the event of termination of operations due to storm, earthquake, blowout, or other events bringing control of the well into question.

The Secretary may reactivate the permit without a separate application, upon determination that it is safe to resume drilling, or upon specification of additional conditions to the drilling to insure that it is safe to proceed.

Section 12. Description of Casing Strings

(a) Drive or Structural. The purpose of this string is to provide top hole stability and easy hole reentry for initial drilling operations.

The proper depth for this string will depend upon the character and degree of consolidation of the ocean bottom and the very shallow formations.

The pipe may be set by drilling, driving or jettins. The method used also will depend on the character of the formations through which it will be set. In some cases this string may not be required.

(b) Conductor. The purpose of conductor casing is to provide tie-in facilities for the riser and other equipment necessary for the drilling of the surface hole and the setting and cementing of the surface pipe, and to provide upper hole stability for these operations.

(c) Surface. The surface pipe has several purposes:

- i) To isolate and protect all fresh water strata.
- ii) To isolate shallow incompetent or vugular formations which would be potential sources of lost circulation if not cased off.
- iii) To provide hole stability by isolating shallow gravel or boulder beds, water sensitive clays and shales, or other formations which might slough into the hole, if allowed to remain exposed.
- iv) To act as a support for wellhead equipment and the weight of subsequent casing strings.
- v) In the event of a well kick, to provide pressure integrity so that the kick can be killed without migration of formation fluids to the surface outside the casing strings.

(d) Intermediate. An intermediate casing string may have one or more of several purposes:

- i) The isolation of upper formations which will not be capable of withstanding the mud weights necessary for deeper drilling.

- ii) The isolation of zones creating hole instability problems.
- iii) The protection of potentially productive zones from damage due to prolonged exposure to drilling fluids.
- iv) The prevention of excessive internal wear of upper casing strings due to drilling operations.

(e) Production Casing. The purposes of the production strings are:

- i) The separation of all oil, gas and water strata below the last casing shoe to provide for selective production and to prevent the migration of formation fluids from one stratum to another.
- ii) To provide pressure containment of the highest expected from the bottom of the well to the top.
- iii) To provide a production flow conduit for some dually-completed wells, when such use creates no hazard.
- iv) Liners. In some cases it may be advantageous to set a short string of pipe which does not reach the surface. The top of this liner shall overlap up to a point at least 200 feet above the shoe of the last previous casing set. A longer overlap may be specified by the Secretary.

Section 13. Casing Program

All casing strings shall be of new pipe capable of withstanding all anticipated collapse and burst pressures and tension loading to which the casing might be subjected.

In the calculation of combination casing strings, the effect of biaxial stresses on collapse resistance shall be determined, using the methods and formulas specified in the latest edition of API Bulletin 5C3 Formulas and Calculations for Casing, Tubing, Drill Pipe and Line Pipe Properties or subsequent amendments thereto.

(a) Design Factors.

Unless otherwise authorized by the Secretary, the minimum design factors for all calculations shall be 1.125 for collapse, 1.100 for burst and 1.800 for tension.

(b) Pressure Testing.

Every joint of casing, except structural or drive pipe,

shall be internally pressure tested full length to 80 percent of minimum yield pressure after the installation of the couplings.

(c) Inspection.

Every joint of casing, except structural or drive pipe, shall be inspected full length by a magnetic particle method, sonic method, or some other method generally accepted by the industry. Visual inspection alone shall not be considered sufficient.

(d) Certification .

The Secretary may require written certification from the pipe mill, the vendor, or the inspection company that the necessary testing and inspection procedures have been performed.

Section 14. Cementing Casings

(a) The drive or structural casing (if drilled or jetted), conductor casing, and surface casing shall be cemented from the casing shoe to the ocean floor, unless otherwise authorized by the Secretary.

(b) The intermediate casing and the production casing shall be cemented so that all water zones, oil or gas zones, and abnormal pressure intervals are covered or isolated, with sufficient cement slurry to bring the top of the annular cement column up to at least 500 feet above the top of the highest interval to be covered.

(c) If a liner is set, sufficient cement slurry shall be used to insure that the annular cement column extends all the way to the top of the overlap.

(d) The Secretary may direct that temperature surveys or cement bond logs be run after any cement job. If the annular space is not adequately cemented, the operator shall employ such remedial measures as directed or approved by the Secretary to insure that the deficiency is corrected.

(e) All cement slurries shall be formulated to have properties compatible with the well conditions and downhole environment under which they are to be placed and used.

Section 15. Pressure Testing of Casing Strings

(a) Prior to drilling out the plug after cementing all blank casing strings, except the drive or structural casing, shall be pressure tested as shown in the table below. Loss in pressure shall not exceed 10 percent during a 30 minute test.

Conductor : 1 PSI Ft of depth or 80% of minimum yield pressure, whichever is lesser.

Surface : 1000 PSI or 80% of minimum yield pressure, whichever is lesser.

Intermediate and Production : 1,500 PSI or 0.2 PSI/Ft, whichever is greater.

(b) All casing pressure tests shall be witnessed and approved by a representative of the Secretary prior to drilling out of the casing or perforating opposite possible oil or gas zones. Inspection of data recorded by a device approved by the Secretary may be substituted for witnessing.

Section 16. Drilling Out After Cementing

A pilot test shall be run on each cement slurry to determine the time required for the cement to attain a compressive strength of 500 PSI at the temperature and pressure at cementing depth, using testing procedures set forth in the latest edition of API RP 10B, or subsequent amendments thereof designated by the Secretary, incorporated herein by reference. The operator shall not commence drilling out before this amount of time has elapsed.

Section 17. Well Control and Blowout Prevention

(a) Blowout Preventers and Related Equipment:

This equipment shall be installed, tested, used, and maintained in the manner necessary to prevent an uncontrolled flow of fluid from a well and in accordance with the provisions specified by the operator in applying for the drilling permit, and specifications or rules issued by the Secretary.

The Secretary may periodically revise specifications for blowout prevention devices, their installation procedures, and testing requirements. Minimum standards shall include the provisions of U.S. Geological Survey, Outer Continental Shelf Order No. 2, Section 4, dated July 1, 1976, and future amendments thereto, upon the acceptance and notification of the amendments by the Secretary.

(b) Mud Monitors and Early Warning Devices:

The following or comparable equipment for monitoring the drilling fluid system must be installed with the indicators at the driller's station and used throughout the period of drilling after setting and cementing the first surface casing.

- i) A recording mud-pit level indicator to determine mud pit volume gains and losses. This indicator shall include a visual and audible warning device.
- ii) A mud volume measuring device for accurately determining mud volumes required to maintain fluid level at the surface while pulling the drill pipe from the hole.
- iii) A mud return or full hole indicator to show when returns have been obtained, or when they occur unintentionally, and also to determine that returns essentially equal the pump discharge rate.

(c) Trips Out of the Hole: Before starting out of the hole with drill pipe, the tendency of the well to flow should be checked and the drilling fluid properly conditioned. Proper conditioning requires circulation of the drilling fluid to the extent that the total annulus volume is displaced and until gas is removed.

When coming out of the hole with drill pipe or tubing, the annulus shall be filled with drilling fluid before the drilling fluid level drops below a calculated depth of 100 feet below the derrick floor.

A mechanical device that indicates the amount of drilling fluid required to keep the hole full shall be watched. If there is any indication of "swabbing" or influx of formation fluids, the inside blowout preventer shall be installed on the drill pipe, the drill pipe shall be run to bottom, and the drilling fluid properly conditioned.

The drilling fluid shall not be circulated and conditioned except on or near the bottom, unless well conditions prevent running the pipe to bottom. The fluid in the hole shall be circulated or reverse circulated prior to pulling drill-stem test tools from the hole.

Section 18. Samples and Cores

(a) Unless otherwise directed by the Secretary, in any exploration or stratigraphic test hole each permittee or lessee shall cause to be taken, preserved, and maintained a series of samples.

Samples shall be taken at interval depths of 30 feet from surface coring until rates become sufficiently slow to permit collecting samples at 10-foot intervals. Thereafter, samples will be taken at interval depths of 10 feet in accordance with the best current industry practice of the various formations which any non-coring drilling penetrates in drilling.