

SOUTH AUSTRALIA

PETROLEUM REGULATIONS 1989

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REGULATIONS UNDER THE PETROLEUM ACT 1940

Petroleum Regulations 1989

being

No. 182 of 1989: *Gaz.* 5 October 1989, p. 1053¹

as varied by

No. 262 of 1991: *Gaz.* 19 December 1991, p. 1968²

No. 11 of 1996: *Gaz.* 18 January 1996, p. 383³

No. 210 of 1996: *Gaz.* 5 September 1996, p. 1098⁴

No. 111 of 1998: *Gaz.* 28 May 1998, p. 2429⁵

¹ Came into operation 16 October 1989: reg. 2.

² Came into operation 19 December 1991: reg. 2.

³ Came into operation 18 January 1996: reg. 2.

⁴ Came into operation 5 September 1996: reg. 2.

⁵ Came into operation 1 July 1998: reg. 2.

N.B. The amendments effected to these regulations by Regulation No. 46 of 1999 had not been brought into operation at the date of, and have not been included in, this consolidation.

Note: Asterisks indicate repeal or deletion of text. For further explanation see Appendix 1.

**PART I
PRELIMINARY**

Citation

1. These regulations may be cited as the *Petroleum Regulations, 1989*.

Commencement

2. These regulations will come into operation on 16 October, 1989.

Revocation

3. The *Petroleum Regulations, 1970*, are revoked.

Arrangement

4. These regulations are arranged as follows:

PART I—PRELIMINARY
PART II—ADMINISTRATION
PART III—GENERAL SAFETY
PART IV—ELECTRICAL INSTALLATIONS
PART V—EXPLOSIVES
 DIVISION I—GENERAL
 DIVISION II—USE OF EXPLOSIVES IN WELLS
PART VI—GEOPHYSICAL AND GEOLOGICAL EXPLORATION
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 DIVISION I—GENERAL
 DIVISION II—OPERATIONAL REQUIREMENTS
 DIVISION III—SAFETY IN DRILLING OPERATIONS
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 DIVISION V—AIR AND GAS DRILLING
 DIVISION VI—SPECIAL SERVICES
PART VIII—PRODUCTION
PART IX—PIPELINES
PART X—MISCELLANEOUS.

Application to State waters

5. (1) These regulations extend, with such modifications as may be necessary, to petroleum operations in or in connection with areas that are subjacent to—

(a) the sea on the landward side of the territorial sea adjacent to the State;

and

(b) waters within the limits of the State.

(2) Where an operation is carried out in an area referred to in subregulation (1), these regulations will operate (with such modifications as may be necessary) in conjunction with the requirements of the *Petroleum (Submerged Lands) Act, 1982*.

Interpretation

6. (1) In these regulations, unless the contrary intention appears—

"**A.P.I.**" means the American Petroleum Institute:

"**the Act**" means the *Petroleum Act, 1940*:

"**appraisal well**" means a well drilled principally to define more accurately the extent or nature of a previously discovered oil or gas accumulation:

"**Australian Standard**" (or "**AS**") means a standard of the Standards Association of Australia:

"**basic data**" includes all data acquired in the field:

"**blooey line**" in relation to air or gas drilling, means a system of pipes arranged to carry away from the drilling rig any air or gas that has returned to the surface:

"**business day**" means any day except Saturday, Sunday or a public holiday:

"**circulation**" means the passing of fluid down the drill pipe, casing or tubing in a well and back up to the surface, or the passing of fluid in the reverse direction:

"**completion**" means a flowpath in a well that allows the production of fluids from a discrete formation interval through the well, or the injection of fluids into a discrete formation interval through the well, and includes the equipment necessary for that production or injection independent of other flowpaths in the well:

"**contractor**" means a person engaged to perform work for an operator under contract (not being a contract of employment):

"**cubic metre**" in relation to gas or liquid, means the amount of gas or liquid in a cubic metre of space at metric standard conditions of 101.325 kilopascals absolute pressure and 15°C temperature:

"**derrick**" means a fixed framework over a well that is used in supporting, hoisting and lowering operations:

"**development well**" means a well drilled within the expected limits or boundaries of a proved petroleum accumulation principally to produce, or to facilitate the production of, the petroleum reserves from that accumulation:

"**directional drilling**" in relation to drilling a well, means drilling that involves intentional changes in the direction of drilling:

"**the Director**" means the Director-General of Mines and Energy:

"**drilling rig**" includes a workover or well-service rig, but does not include a seismic shot hole drilling rig:

"**enhanced recovery**" means increasing the recovery of petroleum from a pool so that it produces a quantity greater than the quantity that would have been achieved by the action of natural reservoir energy on naturally occurring reservoir fluids, but does not include fracture stimulation, localised wash treatments, or artificial lift:

"**existing pipeline**" means an existing pipe or system of pipes that is being used, or is capable of being used, for the transmission of fluid:

"**exploration well**" means a well drilled with a view to discovering a new oil or gas accumulation, or to obtaining stratigraphic information that may assist in the discovery of a new oil or gas accumulation:

"**explosive**" means an explosive within the meaning of the *Explosives Act, 1936*:

"**flame-type equipment**" means any electric or fired equipment that uses an open flame, electric arc or element:

"**flowing well**" means a well from which oil, gas or water is produced without the use of artificial lifting equipment:

"**gas oil ratio**" means the ratio of total gas (expressed in cubic metres) to clean oil (expressed in cubic metres) produced during a stated period:

"**geophysical exploration**" means geophysical investigation by any generally recognized method, and includes the study of the subsurface by seismic, gravimetric, magnetic, electrical, radioactive or geochemical methods:

"**good oilfield practice**" means all those things that are generally accepted as good and safe in the carrying out of petroleum operations:

"**inspector**" means a person appointed as an inspector under the Act:

"**mast**" includes any portable or collapsible framework that is used over a well in supporting, hoisting and lowering operations:

"**monument**" means a survey mark used to establish—

(a) a corner, boundary or station of a petroleum title;

or

(b) a cadastral, geodetic or topographic survey,

and includes any related reference marks:

"**multiple completion well**" means a well that has more than one completion:

"**operation**" or "**petroleum operation**" means any activity relating to exploration for, or the production, processing or transportation of, petroleum under the Act:

"**operator**" means a licensee who is carrying out, or who is responsible for, an operation under a petroleum title:

"**petroleum title**" means a petroleum exploration licence, a petroleum production licence or a pipeline licence under the Act:

"**plant**" includes—

- (a) any machinery, equipment, vehicle, implement, tool or article used in, or in connection with, an operation;
- (b) any tank, vessel or pit used in, or in connection with, an operation;
- (c) any pipeline:

"**process vessel**" means a vessel used to process fluids or solids by mechanical, fluid mechanical, chemical, thermal or other means:

"**production facility**" means a system (other than a short-term or temporary system) made up of plant (other than pipelines) that is used in a production, processing or transportation operation, or in an operation to treat or dispose of waste materials that result from petroleum production:

"**production potential**" means the capacity of a well to produce oil, gas or water, calculated or measured in accordance with generally accepted procedures:

"**quarter**" means any three month period commencing on 1 January, 1 April, 1 July or 1 October in any year:

"**reservoir**" means any porous and permeable rock that is capable of storing fluids and yielding them to a well:

"**reservoir measurements**" means measurements of reservoir pressure and temperature, and measurements of the movement of fluids and fluid interfaces within a reservoir:

"**reservoir pressure**" means the static or stabilized pressure that exists, or that is presumed to exist, in a reservoir at a given datum:

"**seismic source**" means an energy source used to create shock waves in the earth (so that the reflections may be recorded when investigating subsurface strata):

"**separator**" means an apparatus used at the surface to separate fluids produced from a well:

"**shot hole**" means a hole drilled for the purpose of firing an explosive charge:

"**shot point**" means the surface location of, and the area immediately surrounding, a shot hole or other place where a seismic source is initiated:

"**well**" means a hole in the ground that is made for the purpose of—

- (a) searching for, or producing, petroleum;
 - (b) underground petroleum storage;
 - (c) injecting fluid into an underground petroleum reservoir;
- or
- (d) disposing of waste fluids that result from production operations,

and includes any casing or down hole equipment used in conjunction with the well and any wellhead that is installed in or on the hole from time to time, but does not include a water bore or a seismic shot hole:

"**wellhead**" means the casing head and includes any casing hanger or spool, or tubing hanger, and any flow control equipment up to and including the wing valves:

"**well logging**" means recording one or more physical properties, formation characteristics or reservoir measurements as a function of depth in a well.

(2) For the purposes of these regulations, drilling equipment or materials are of an approved kind if they have been approved by the A.P.I. or by some other testing agency or authority recognized by the Director.

(3) Where a regulation requires that particular work be carried out by a competent person, that regulation will be taken to require that the work be carried out by a person who is suitably qualified or experienced to carry out that kind of work.

(4) In these regulations—

"**m**" means metre:

"**mm**" means millimetre.

(5) A reference in these regulations to the requirements or recommendations of an Australian Standard or an A.P.I. Standard, Bulletin or Recommended Practice is a reference to that Standard, Bulletin or Recommended Practice as in force from time to time.

Note: For definition of divisional penalties (and divisional expiation fees) see Appendix 2.

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General duties and responsibilities of operators and contractors

8. (1) Subject to this regulation—

- (a) it is the duty of an operator and any contractor to ensure compliance with these regulations;

and

7.

- (b) in the event of a contravention of, or failure to comply with, a provision of these regulations, the operator and contractor are each guilty of an offence.

Penalty: Division 6 fine.

(2) In addition to the operation of subregulation (1), if a regulation provides that a particular person must perform or discharge a function or duty under the regulation, that person is guilty of an offence if he or she contravenes, or fails to comply with, the regulation.

Penalty: Division 6 fine.

- (3) Subject to any express provision in a particular regulation—

- (a) the operator must provide, install and maintain such plant as is necessary to enable compliance with these regulations;

and

- (b) where a contractor has been engaged to perform particular work, the contractor must also, in relation to the performance of that work, provide, install and maintain such plant as is necessary to ensure compliance with these regulations.

Penalty: Division 6 fine.

(4) It is a defence to a charge for an offence against these regulations for the accused to prove—

- (a) that the offence relates to a matter over which the accused did not have control and could not reasonably have been expected to have had control;

or

- (b) —

- (i) that it was not reasonably practicable for the accused to comply with the relevant regulation in the circumstances of the particular case;

and

- (ii) that he or she took alternative action that was at least as safe and effective as the requirements of the relevant regulation.

General duties and responsibilities of supervisors

9. (1) Where a person is appointed by an operator or contractor to supervise any work, the person must ensure, so far as is reasonably practicable, that the work is carried out in accordance with these regulations.

Penalty: Division 7 fine.

8.

(2) A person who is appointed to supervise another in the performance of any work must ensure, so far as is reasonably practicable—

(a) that the other person does not perform that work in an unsafe manner or in unsafe circumstances;

and

(b) that all plant used by that other person is in good working condition.

Penalty: Division 7 fine.

General duties and responsibilities of employees

10. An employee must, so far as is reasonable, do all such things as are required of him or her—

(a) under these regulations;

and

(b) to ensure compliance with these regulations.

Penalty: Division 8 fine.

Availability of regulations

11. A copy of these regulations must be reasonably available for inspection on each drilling rig, and at all other main operational locations.

**PART II
ADMINISTRATION**

Licences and Royalties

Application and reviews

12. (1) An application for a licence under the Act must be in writing.

(2) An operator under a petroleum exploration licence must, at least one month before the commencement of each year of the term of the licence, meet with the Director in order to review the progress of the operations being undertaken under the licence, and to discuss the operator's proposals for exploration during the forthcoming year.

Register of licences

13. (1) Subject to this regulation, the register of licences must be kept available for public inspection during ordinary office hours.

(2) A fee of \$112 is payable to inspect the register.

(3) The Director may refuse to allow a person to inspect a particular instrument on the register unless the person has the written permission of the relevant licensee.

(4) The Director may, on payment of a fee calculated at the rate of \$1.12 per page, supply certified copies of, or extracts from, the register or an instrument on the register.

Royalties

14. (1) A royalty payable to the Minister under section 35 of the Act will be due and payable not later than one month after the end of the relevant royalty calculation period.

(2) A royalty calculation period, in respect of a particular licence, is a period determined by the Minister after consultation with the relevant licensee.

Appeals

Appeals

15. (1) This regulation applies to an appeal to the Minister under section 47 or 49 of the Act by a licensee who requires the consent of the owner or occupier of land to enter the land, or to conduct an examination or operation on the land.

(2) Subject to this regulation, an appeal must be instituted—

(a) within two months after the date on which the owner or occupier refuses consent;

(b) if the owner or occupier gives his or her consent subject to conditions to which the licensee objects—within two months after the date on which the consent is given;

(c) if the owner or occupier neglects to give his or her consent within two months after the licensee, by notice in writing, requests his or her consent—within two months after the expiration of that initial two month period.

(3) The Minister may allow an extension of time for commencing an appeal.

(4) Where the owner or occupier of land is not known, or is absent from the State and has no known agent in the State, or is dead and has no personal representative, an appeal may be instituted at any time.

(5) An appeal must be instituted by serving a written notice of appeal on the Minister and on every owner and occupier of the relevant land (but where an owner or occupier is not known, or is absent from the State and has no known agent in the State, or is dead and has no personal representative, or is for some other reason unable to be served, the notice of appeal may be served on him or her by affixing a copy of the notice in a conspicuous place on the relevant land).

(6) The Minister must, before determining an appeal, by written notice sent to the appellant and each owner and occupier of the land (or, if any such notice cannot reasonably be given to a particular person, by written notice published in a newspaper circulating generally throughout the State), invite interested persons to make, on or before a date specified in the notice, submissions in writing relating to the subject matter of the appeal.

(7) In making his or her decision on the appeal, the Minister must consider any submissions made in response to a notice under subregulation (6) but otherwise may decide the appeal as he or she thinks fit.

Protection of the Environment

Protection of the environment

16. (1) An operator must ensure that operations under a licence are carried out in a manner that avoids or, where that is not reasonably practicable, minimizes any adverse impact on the environment.

(2) Unless alternative arrangements are established to the satisfaction of the Minister, an operator must, at least six weeks before the commencement of—

- (a) a geophysical survey programme, other than well logging;
 - (b) a drilling programme;
 - (c) the construction of a production facility;
- or
- (d) the construction of a pipeline,

submit for the approval of the Director a declaration of environmental factors (and the operator must not commence any such activity unless or until that approval is given).

(3) The declaration of environmental factors must be submitted in a manner and form acceptable to the Director.

(4) In addition to the requirements of subregulation (1) and (2), before an operation is commenced under a licence, the operator must submit for the approval of the Director a code of environmental practice containing an outline of the procedures that are proposed—

11.

- (a) to minimize hazards to the health and well-being of persons working in the operation, and the public generally;
- (b) to protect wildlife, livestock, flora and sites of natural, historical or cultural significance;
- (c) to minimize disturbance of the land surface;

and

- (d) to clean up any areas disturbed by the operation and, if there is no proposal for the subsequent development of the land, to leave the land in a state that will facilitate its restoration,

(and the operator must not commence the operation unless or until that approval is given).

(5) A code of environmental practice must be reviewed by the operator at least once in every three years and resubmitted for the approval of the Director.

(6) A code of environmental practice must be submitted (or resubmitted) in a manner and form acceptable to the Director.

(7) A code of environmental practice in place immediately before the commencement of these regulations must be revised and resubmitted for the approval of the Director within six months after the commencement of these regulations.

(8) The Director may give an approval under this regulation subject to the operator complying with conditions specified by the Director.

(9) The operator must not breach, or fail to comply with, a condition imposed under subregulation (8).

Reports

Accident reports

17. (1) Where, in connection with the performance of any work during operations under a petroleum title—

* * * * *

- (b) any of the following incidents occur—
 - (i) an accidental explosion or fire;
 - (ii) a blowout;
 - (iii) a significant spillage of hydrocarbons;
 - (iv) a break or leak in a tank, pipeline or auxiliary installation that causes any loss of petroleum or process fluids;

12.

- (v) the collapse or failure of, or structural damage to, the load-bearing part of any scaffolding, shoring, crane or hoist;
- (vi) the collapse of any part of a well or rig,

* * * * *

the operator must ensure that notice of the incident is given to the Director or an inspector (by telephone, radio or otherwise) as soon as reasonably practicable after the occurrence of the incident.

(2) In addition to the requirements of subregulation (1), the operator must ensure that a written report relating to an incident referred to in subregulation (1) is prepared (in a form approved by the Director) within 24 hours after the occurrence of the incident and that a copy of that report is received by the Director within five business days after the occurrence of the incident.

* * * * *

(4) A report under subregulation (2) relating to an incident must include the following information:

- (a) the name of the operator;
- (b) the business address of the operator;
- (c) the place where the incident occurred;
- (d) the apparent cause of the incident;
- (e) the nature and extent of any damage caused;
- (f) the work (if any) that was being carried out at the time of the occurrence of the incident;
- (g) the nature and degree of risk to which any person was, or could have been, exposed.

* * * * *

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Half-yearly reports

19. (1) In this regulation—

"**half-year**" means any six month period commencing on 1 January or 1 July in any year.

(2) An operator under a petroleum exploration licence must, within one month after the end of each half-year (or within such longer period as the Director may approve), furnish the Director with a report on the operations carried out under the licence during the particular half-year.

(3) The report must be furnished in a manner and form acceptable to the Director.

*Inspections***Powers of inspectors**

20. (1) In this regulation—

"**inspector**" includes—

- (a) an authorized officer under the Act;
- (b) a person acting under section 80q of the Act:

"**prescribed matter**" means—

- (a) any matter relevant to ascertaining whether the provisions of the Act, these regulations or any applicable declarations of environmental factors or codes of environmental practice are being complied with or observed;
- (b) the occurrence of a work-related injury, accident or dangerous incident;
- (c) any other matter connected with the exercise, performance or discharge of a power, function or duty under the Act or these regulations.

(2) An inspector may, for the purpose of investigating a prescribed matter—

- (a) enter land, and inspect the land and any operations or other activity being carried out on the land;
- (b) examine anything on the land;
- (c) carry out tests;
- (d) take photographs, films or videos;
- (e) require a person who may be in a position to furnish information relevant to any matter under investigation—
 - (i) to take reasonable steps to provide that information to the inspector;
 - (ii) to answer a question to the best of that person's knowledge, information or belief;
- (f) —
 - (i) require a person to produce any books, documents or records in his or her control;
 - (ii) require a person to produce any information stored by computer, microfilm or any other means;

14.

- (g) examine, copy and take extracts from any book, document, record or information produced under paragraph (f), or require a person to provide a copy of any such book, document, record or information.

(3) Any person who is in a position to do so must, at the request of an inspector, provide such assistance as the inspector may reasonably require in the exercise of a power under this regulation.

(4) A person must not—

- (a) refuse or fail to comply with a requirement made under this regulation;
- (b) hinder an inspector in the exercise of a power under this regulation.

Penalty: Division 7 fine.

(5) A person is not required to answer a question under this regulation if the answer would tend to incriminate that person of an offence under the Act or these regulations.

(6) An inspector must not divulge information obtained under this regulation except—

- (a) as may be required for the purposes of official duties, or in connection with the operation or administration of the Act or these regulations;
- (b) as may be permitted in writing by the person from whom the information was obtained;

or

- (c) as may be required by law.

(7) Where an inspector exercises a power under this regulation, the inspector must, at the request of a person affected by the exercise of the power, produce evidence of his or her appointment as an inspector.

Issue of notices by inspectors

21. (1) Where an inspector is of the opinion—

- (a) that any plant is in a dangerous condition;

or

(b) that work being carried out under a petroleum title—

- (i) is contravening a provision of the Act, these regulations, a declaration of environmental factors or a code of environmental practice;
- (ii) is dangerous;

or

- (iii) is not in accordance with good oilfield practice,

the inspector may, by a notice in writing, refer the matter to the relevant operator.

(2) The notice must specify a day by which the operator must report to an inspector on the action taken in relation to the notice.

(3) An inspector may—

- (a) direct that no further work may be carried out until the matter referred to in the notice is remedied, or until an inspector otherwise approves the resumption of work;
- (b) give directions as to the measures to be taken to remedy the matter referred to in the notice, which directions may include—
 - (i) that plant be repaired or replaced;
 - (ii) that any part of the environment be restored or rehabilitated;
 - (iii) that a particular work-practice be altered or discontinued.

(4) An operator must not contravene, or fail to comply with, a notice under this regulation.

Penalty: Division 6 fine.

Miscellaneous matters

Release of information

22. (1) While a petroleum title is in force, the Director may make available to the public the following information:

- (a) in relation to an operation carried out under a petroleum exploration licence—
 - (i) after the expiration of two years from the date of the release of a rig from a particular well—samples and basic data furnished in the final well report;
 - (ii) after the expiration of two years from the date of completion of field acquisition—basic data from any geophysical survey;
- (b) in relation to an operation carried out under a petroleum production licence—
 - (i) after the expiration of three months from the end of the relevant period—production data (including oil, gas, water and other substances produced from or injected into each completion) relating to each six month period ending on 30 June and 31 December in each year;
 - (ii) after the expiration of five years from the date of the release of a rig from a particular well—samples and basic data furnished in the final well report;
 - (iii) after the expiration of five years from the date of completion of field acquisition—basic data from any geophysical survey.

(2) Where—

(a) a petroleum title—

(i) expires without being renewed;

(ii) is surrendered;

or

(iii) is cancelled under the Act;

or

(b) land subject to a petroleum title—

(i) is excised from the title;

or

(ii) is surrendered by the licensee,

the Director may make available to the public information derived from operations conducted under the title or in respect of the land (as the case may be).

(3) Where a person—

(a) analyses any core or cuttings obtained under this regulation;

or

(b) reprocesses any data from geophysical surveys obtained under this regulation,

the person must, within six months of completing the analysis or reprocessing, furnish the Director with a detailed statement of his or her results.

(4) A statement under subregulation (3) will be available for public inspection after the expiration of one year from the date on which it is furnished to the Director.

(5) The information that may be made available to the public under this regulation includes information obtained by the Department before the commencement of these regulations.

(6) This regulation does not extend to the release of information to which section 82 of the Act applies.

Interference with public utilities

23. Unless the Minister otherwise approves, an operation must not be carried out in a manner that interferes with a road, railway or pipeline, a telephone or power line or cable, a radio or television mast, or any other form of public utility or facility.

Identification of wells

24. The operator must, after the release of a rig, ensure that the well is clearly marked in a permanent manner with the field name and well number.

Containment of petroleum

25. (1) Petroleum obtained from land comprised in a petroleum title must be confined to tanks, gas holders, pipes or other receptacles in accordance with good oilfield practice.

(2) Except as a temporary measure during an emergency, petroleum must not be placed or kept in an earthen pit.

Interference with facilities, etc.

26. Unless otherwise authorized by the operator, a person must not interfere with any work, facility or plant carried out, constructed or used in an operation under a petroleum title so as to adversely affect the efficiency or effectiveness of that work, facility or plant.

Penalty: Division 7 fine.

**PART III
GENERAL SAFETY**

Exemptions

27. (1) Where the Director is satisfied—

(a) that compliance with a requirement of this Part is, in a particular case, unnecessary, impracticable or undesirable;

and

(b) that alternative action that is at least as safe as a requirement of this Part will be taken and that, in the circumstances of a particular case, it is appropriate to do so,

the Director may exempt any person or class of persons from the duty to comply with the particular requirement.

(2) The Director may grant an exemption under subregulation (1) on his or her own initiative or on the application of any person.

(3) The Director may grant an exemption under subregulation (1) on such conditions, and subject to such limitations, as the Director thinks fit.

(4) Where—

(a) a person contravenes or fails to comply with a condition of an exemption;

or

(b) the Director is satisfied—

(i) that the circumstances under which an exemption was granted have altered;

or

(ii) that in the interests of health or safety it is necessary to do so,

the Director may revoke the exemption (either as it applies to a particular person, or generally).

General duty

28. An operator and any contractor must in respect of an operation, so far as is reasonably practicable—

(a) provide and maintain—

(i) a safe working environment;

(ii) safe systems of work;

(iii) plant and substances in a safe condition;

and

- (b) provide to any person carrying out work as part of the operation such information, instruction and training as are reasonably necessary to ensure that the person is safe from injury or risks to health.

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Fire-fighting equipment

31. (1) Adequate fire-fighting equipment must be provided on each drilling rig, in connection with the use of well servicing equipment, at any tank farm, and at any other location where there is a substantial risk of the occurrence of fire, or a substantial risk of serious damage in the event of a fire.

(2) Every employee must be trained in the effective use of the equipment that he or she might be required to use in the event of a fire.

(3) All fire-fighting equipment must be maintained in good working condition.

Communications

32. (1) Radio or telephone communication facilities must be maintained—

- (a) at each main operational location, main tank farm, main pumping station and main compressor station;

and

- (b) at any geophysical survey camp or fly camp situated in a remote area,

and must also be available in connection with any well drilling or servicing operations.

(2) All communication equipment must be maintained in good working condition.

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Noise levels

35.

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(2) An operation must not be carried out or continued if, within 3.5m from any permanently established residence, the noise level exceeds—

- (a) 60dB(A), at any time between 7.00 a.m. and 10.00 p.m.;

or

- (b) 50dB(A), at any time between 10.00 p.m. and 7.00 a.m. the next day.

Radioactive substances

36. The Director must be informed, in writing, whenever it is proposed to use any radioactive material, other than in routine well logging or non-destructive testing.

Notices

37. (1) The following notices (or a combination of those notices) must, as appropriate, be displayed in connection with the carrying out of an operation:

DANGER—HYDROGEN SULPHIDE GAS
DANGER—FLAMMABLE GAS
DANGER—EXPLOSIVES IN USE
DANGER—FLAMMABLE LIQUIDS
DANGER—MACHINERY UNDER REPAIR
SAFETY HELMET AREA
SAFETY FOOTWEAR AREA
NO SMOKING OR NAKED LIGHTS
KEEP OUT.

(2) Other notices must be displayed, as the circumstances of a particular case may require, in relation to other conditions that are hazardous to the health or safety of any person, or to the safety of any property.

(3) A notice required under this regulation must comply with the appropriate requirements of Australian Standard 1319 "Rules for the Design and Use of Safety Signs for the Occupational Environment".

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Repair of plant

41. A person must not carry out repairs on any plant until proper procedures for the safe repair of the plant have been established.

Mobile equipment

42. (1) Mobile equipment—

(a) must be maintained in good condition;

(b) must be used by a competent person;

and

(c) must not be abused, or used for a purpose that is inconsistent with the purpose for which it is designed.

(2) Where mobile equipment must be used in a situation where there is a danger of falling objects, the equipment must be fitted with an overhead guard to protect the driver or operator of the equipment.

(3) Where mobile equipment uses a hoisting or hauling rope or chain and the driver or operator of the equipment could be injured if the tackle broke under tension, the equipment must be fitted with a guard to protect him or her from that risk.

(4) A cab or similar compartment on any mobile equipment must be sufficiently ventilated.

(5) If a vehicle, or the load on a vehicle, exceeds 3m in width, a "WIDE LOAD" sign must be displayed on the front and the rear of the vehicle while it is being driven.

(6) If a vehicle, or the load on a vehicle, exceeds 4m in width, another vehicle (of standard width) must travel in front of the vehicle (and within 500m of the vehicle) and display the sign "WIDE LOAD FOLLOWING".

(7) The driver or operator of any mobile equipment is responsible for the safe operation of that equipment.

(8) Where the vision of the driver of any mobile equipment is obstructed, the driver must be assisted by a person giving appropriate signals.

(9) A vehicle that does not comply with the *Road Traffic Act, 1961*, must not be driven during the hours of darkness.

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Waterborne operations

47. The master of a vessel used in an operation must ensure that the vessel is in a sound and sea-worthy condition.

Debris constituting a fire hazard

48. (1) Any rubbish, debris or oil refuse associated with an operation that could constitute a fire hazard must be removed or drained to a safe distance of not less than 45m away from all buildings, installations, wells and production facilities.

(2) The rubbish, debris or oil refuse must then be burned or otherwise disposed of in a proper manner that is consistent with the applicable code of environmental practice.

Siting of flares

49. (1) A flare pit or the end of a flare line must be located a safe distance from—

- (a) the outside of a well, separator, pipeline, storage tank or temporary production facility;
- (b) an unprotected source of flammable vapour;
- (c) an unprotected source of ignition;
- (d) a road, railway or building.

(2) An access road must be sited a safe distance from a flare pit or the end of a flare line.

(3) A flare line must be constrained.

(4) Permanent flare installations must be fenced off and a safe method provided to ignite each flare.

(5) A flare pit must be sited and constructed so as not to create a hazard to persons or property.

(6) Flaring operations must be carried out under proper supervision.

(7) Proper fire-fighting equipment and materials must be available to meet an emergency during flaring operations.

Temporary well site production equipment

50. (1) A fire or unprotected flame, or any flame-type equipment, must not be located within 45m of a well or unprotected source of flammable vapour.

(2) Subject to subregulation (3), an oil storage tank must not be located within 45m of a well.

(3) The Director may allow the distance referred to in subregulation (2) to be reduced in an appropriate case (but the distance must always be at least 25m).

(4) Flame-type equipment must not be placed within 25m of a process vessel unless the equipment is fitted with an adequate flame arrester and flame-proofed air inlets.

(5) A pressure vessel containing flammable material must not be placed within 25m of a well, or within 25m of a dissimilar source of flammable vapour.

(6) This regulation does not prevent the grouping of similar items of production equipment.

Siting of production equipment

51. (1) All permanent production equipment and process vessels must be sited and spaced after taking into account Australian Standard 2430 "Classification of Hazardous Areas", and details of those sitings and spacings must be furnished to the Director or an inspector on request.

(2) Production equipment must not be located within 45m of an established road, railway or building.

(3) Surface hydrocarbon storage tanks, other than temporary well-test tanks, must be enclosed by a main bund wall and the bund capacity must be greater than the volume of the largest tank or group of interconnected tanks (whichever is the greater), plus 10 per cent of the combined volume of all other tanks within the bund.

(4) Subject to subregulation (5), a tank must not be located within 45m of a well.

(5) The Director may allow the distance referred to in subregulation (4) to be reduced in an appropriate case (but the distance must always be at least 25m).

(6) A pressure vessel must not be located within a bund surrounding a tank or group of tanks.

Venting of flammable vapours

52. (1) All process vessels, instruments and equipment from which flammable vapour may be emitted must be safely vented to the atmosphere.

(2) All vent lines and drain lines from process vessels or storage tanks that are vented to flare pits or flare stacks must be fitted with flame arresters or other similar safety devices.

* * * * *

Internal combustion engines

54. (1) An internal combustion engine must not be used within 30m of a well or other source of flammable vapour unless it is fitted with an effective exhaust muffler, spark arrester and, where appropriate, a brushless alternator.

(2) An internal combustion engine must not be used within 15m of a well or other source of flammable vapour unless—

- (a) it is of the compression ignition type;
 - (b) the engine and all ancillary components have been rendered spark proof;
 - (c) all operating electrical components are flame proof;
- and
- (d) exhaust pipes, manifolds and turbo chargers are insulated, cooled or otherwise constructed or protected to prevent the ignition of flammable vapours or liquids.

(3) A diesel engine must not be used within 15m of a well or other source of flammable vapour unless it is fitted with one of the following:

- (a) air intake shut-off valves operated by engine overspeed, remote control from the rig floor, or some other means approved by the Director;
- (b) a system that injects inert gas into the cylinders and is operated by engine overspeed, remote control from the rig floor, or some other means approved by the Director;
- (c) a duct that allows air for the engine to be obtained at least 15m from the source of flammable vapour;

or

- (d) some other device approved by, and operated under such conditions as may be stipulated by, the Director.

(4) Where an engine is fitted with a system referred to in subregulation (3)(a) or (b), the engine and its shut-down system must be tested as follows:

- (a) during the drilling of a well, the engines must be tested before the cement plug at the shoe of the surface casing is drilled out, and thereafter at intervals not exceeding seven days;
- (b) during any workover, the engines must be tested before operations are commenced on the well, and thereafter at intervals not exceeding seven days;

and

(c) where the engine is part of a production facility, the engine must be tested at the commencement of operations and thereafter at intervals not exceeding one month.

(5) Where a test is carried out under subregulation (4), a record of the test must be made in the tour report or in the log book kept under regulation 59.

(6) Subregulations (1), (2) and (3) do not prevent the use of a diesel engine on a permanent well pumping installation where—

(a) the engine is at least 6m from the well;

(b) the known gas oil ratio of each producing formation in the well does not exceed 100;

and

(c) the shut-in wellhead pressure of each producing formation in the well does not exceed 5 000 kPa.

Fuel tanks

55. (1) Gasoline or other liquid fuel must not be stored within 45m of a well unless it is stored in an operating storage tank.

(2) The drainage from any place where fuel is stored must be in a direction away from any well within the immediate vicinity.

Lighting

56. (1) A work site must have adequate lighting while work is in progress.

(2) The following minimum illumination (measured 500mm above the relevant location) must be maintained while work is in progress:

(a) 50 lux on main working floors and mast platforms, inside buildings, and around all working machinery;

(b) 25 lux at a wellhead, processing plant or tank, on stairways, and at all other work areas.

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Temporary cessation of any operation

58. Prior to, or immediately following, the cessation or temporary shut down of any drilling, workover or production operation, each well and all plant must be made safe in accordance with good oilfield practice.

**PART IV
ELECTRICAL INSTALLATIONS**

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Protection of circuits

64. (1) An electrical circuit must be protected against overload and short circuit.

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Exemption from lightning protection

65. Despite the requirements of any code of practice, the structure of a drilling rig need not be protected against lightning if it is earthed so that the maximum resistance to earth does not exceed 10 ohms.

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Electricians and inspection of electrical equipment

70. (1) A person must not—

- (a) install an electrical apparatus or circuit;
 - (b) carry out maintenance work on an electrical apparatus or cables (including any automatic or other protective device);
 - (c) carry out an examination of, or test on, an electrical apparatus or cable;
 - (d) carry out a test of the effectiveness of the earthing system, the continuity of the earthing conductors or the condition of any electrical insulation;
- or
- (e) carry out an examination of, or test on, an electrical apparatus or cable that has been newly connected, or dismantled and reconnected in a new position,

unless the person is a competent electrical worker.

(2) Subregulations (1)(c), (d) and (e) do not apply to apparatus carrying voltages not exceeding extra low voltage, or apparatus in, and ancillary to, wireline logging units, mud logging units and electronically equipped production control and gauging installations.

(3) The tests and examinations referred to in subregulation (1) must be carried out—

- (a) in the case of drilling rigs—prior to spudding in each well, and thereafter at intervals not exceeding two months;
 - (b) in the case of temporary installations—at intervals not exceeding two months;
- and
- (c) in the case of permanent installations—at intervals not exceeding one year.

(4) The results of a test or examination must be recorded by the electrical worker in the tour report or in a log book, and must be countersigned by the person supervising work on the particular site.

(5) The Director may require that other, or additional, tests or examinations be carried out.

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**PART V
EXPLOSIVES**

DIVISION I—GENERAL

Exemptions

72. (1) Where the Director is satisfied—

(a) that compliance with a requirement of this Part is, in a particular case, unnecessary, impracticable or undesirable;

and

(b) that alternative action that is at least as safe as a requirement of this Part will be taken and that, in the circumstances of the particular case, it is appropriate to do so,

the Director may exempt any person or class of persons from the duty to comply with the particular requirement.

(2) The Director may grant an exemption under subregulation (1) on his or her own initiative or on the application of any person.

(3) The Director may grant an exemption under subregulation (1) on such conditions, and subject to such limitations, as the Director thinks fit.

(4) Where—

(a) a person contravenes or fails to comply with a condition of an exemption;

or

(b) the Director is satisfied—

(i) that the circumstances under which an exemption was granted have altered;

or

(ii) that in the interests of health or safety it is necessary to do so,

the Director may revoke the exemption (either as it applies to a particular person, or generally).

General provision

73. (1) The storage, transportation and use of explosives in or in connection with a petroleum operation must be carried out in accordance with the appropriate requirements of Australian Standard 2187 "SAA Explosives Code".

* * * * *

Competence of workers

74. (1) Subject to subregulation (2), a person must not use, handle, prepare or fire explosives unless the person—

(a) is the holder of an approved blasters permit;

or

(b) is working under the direct supervision of the holder of an approved blasters permit, is of or over the age of 18 years, and has good command of the English language.

(2) Subregulation (1) does not apply in relation to the use of explosives in wells.

Nature of responsibilities

75. Where explosives are being used in, or in connection with, an operation, all persons who handle, charge or fire the explosives are jointly and severally responsible for the proper handling, charging and firing of the explosives.

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Explosives not to be exposed to heat, etc.

77. Explosives (including detonators) must be stored in a cool and dry place and must not be subjected to shock when transported.

Magazines

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(2) The space immediately around and above a magazine must be cleared of all flammable material to a distance of at least 4m.

(3) A magazine must be placed under the charge of a competent person who will be responsible for—

(a) keeping the keys to the magazine;

(b) ensuring the safe storage of explosives contained in the magazine;

and

(c) keeping a proper record of the explosives that come into, or are issued from, the magazine.

(4) An inspector is entitled to inspect a magazine, and the record required under subregulation (3)(c), at any time.

Use of secure containers

79. (1) Any explosives that are taken out of a magazine must be kept in a strong and secure container acceptable to an inspector.

(2) The container must be made entirely of wood, fibre, bronze, brass, rubber or other minimum-sparking material.

- (3) A separate container must be used for carrying detonators.
- (4) Explosives must be taken directly to the place where they are to be used.

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Handling, preparing and firing

81. (1) A person who is involved in preparing or firing explosives must wear a safety helmet.

(2) A case containing explosives may only be opened with a tool that is made entirely of wood, fibre, bronze, brass, rubber or other minimum-sparking material.

(3) Except in the case of a primer or as otherwise approved by an inspector, a person must not remove the wrapper around a cartridge of nitroglycerine explosives that is to be used to charge a hole.

(4) A cartridge of explosives may only be cut on a wooden surface by the use of a knife that is made of minimum-sparking material and that has a fixed blade.

(5) A shot hole must be of sufficient diameter to accommodate the explosives that are to be loaded into it.

(6) A tamping rod or stick must be of wood, or other material acceptable to an inspector.

(7) Explosives may be pressed or tamped into a hole that has been prepared for them, but must not be rammed or unduly forced.

(8) A weight used to load a shot hole must be of non-ferrous material.

Warnings

82. The person who is supervising a firing operation must, before any explosives are fired—

(a) ensure that all persons in the vicinity are safe, and warn them of the firing;

and

(b) place a person at each approach to the area to ensure that no person goes within an unsafe distance of the explosion.

Use of safety fuses

83. (1) A safety fuse must not be used for firing a charge in seismic prospecting or perforating, or in other operations during the drilling of a well.

(2) Where more than one fuse is being ignited, the igniter must be of a kind acceptable to an inspector.

(3) Reasonable precautions must be taken to ensure that no portion of a burning igniter can fall into a hole or on to a fuse.

(4) At least two persons must, where practicable, count the number of exploding shots.

(5) A misfire will be taken to have occurred if the count is lower than the number of fuses lit, or if there is disagreement over the count.

Electric firing

84. (1) Where an exploder is used to fire shots electrically, the exploder, cables and wires must be appropriate to the conditions under which the firing is being carried out.

(2) Detonator wires must be unravelled or unwound slowly when a charge is being lowered into a hole by the wires.

(3) Detonator wires must not be unravelled or unwound by being thrown or dragged on the ground.

(4) Detonator wires must not be anchored to a grounded conductor.

(5) An exploder must be fitted with a locking device that prevents the circuit from being completed.

(6) There must only be one key issued for use with a particular exploder and that key must be kept by the person who is supervising the firing operations.

(7) An exploder must be kept locked while it is not in use.

(8) An exploder must not be connected to the firing cable until all other steps preparatory to the firing of the shot have been completed, and all persons are in a safe place.

(9) Immediately before firing, the electrical circuit must be tested by a circuit test of a kind acceptable to an inspector.

(10) Immediately after firing, the locking device must be used to break the firing circuit, and then the firing cables must be disconnected from the exploder and short-circuited by twisting together the ends of the wires.

(11) Detonators must not be fired by battery power except through an exploder that is acceptable to an inspector and that provides at least 100 volts.

(12) All equipment and apparatus must be maintained in good working order and tested at such intervals as may be necessary to ensure their constant efficiency.

(13) Any equipment or apparatus found to be damaged, inefficient or otherwise unsuitable must be immediately withdrawn from use.

Short-circuiting of detonators and firing cables

85. (1) Where shots are to be fired electrically, the detonator lead wires must remain short-circuited until the explosive charge is at the required firing position in the shot hole.

(2) The firing cable leading to the explosive charge must also remain short-circuited while the leads from the detonators or the extensions are being connected to each other and to the firing cable.

(3) The short-circuit in the firing cable must not be opened until all persons are in a safe place and then it may only be opened in a location where a premature explosion would not harm the person opening it.

(4) After a shot has been fired, the firing cables must immediately be removed from the firing switch and short-circuited.

Precautions against stray currents

86. Where shots are fired electrically in the vicinity of power or lighting cables, the firing cables must not be allowed to come into contact with, or be affected by, any leakage of electrical current from those cables.

Use of power cables

87. (1) Electric power cables may only be used for firing shots if the firing switch is of a kind acceptable to an inspector.

(2) The firing switch must be constructed and protected so as to ensure a total absence of current or current leakage into the firing cables leading to the point where the wires from the charges to be fired are connected (other than when the switch is closed).

(3) A firing switch must be placed in a fixed locked box on its own, the box being constructed so that it cannot be shut unless the switch is in the safety position.

(4) There must only be one key issued for a particular box and that key must be kept by the person who is supervising the firing operations.

(5) The firing switch must not be connected to the power source until all persons are in a safe place.

(6) Electrical contact must not be made to the firing switch until immediately before firing.

(7) Electrical contact must be disconnected immediately after firing, and the box locked.

(8) Firing cables or wires used for firing shots at a particular place must not be subsequently used for firing shots at another place until steps have been taken that ensure that the firing cables or wires have been disconnected from the leads used at the first place.

(9) All equipment and apparatus must be maintained in good working order and tested at such intervals as may be necessary to ensure their constant efficiency.

(10) Any equipment or apparatus found to be damaged, inefficient or otherwise unsuitable must be immediately withdrawn from use.

Drilling near explosive charges

88. A hole must not be drilled in a direction that would bring it into contact with a hole containing an explosive, and a hole in which an explosive has been previously charged must not be redrilled.

Firing in vicinity of people and buildings

89. Where explosives must be fired in the vicinity of an established road, railway or building, the person firing the explosive must take all practicable steps to protect the safety of persons and property.

Firing in the vicinity of radio transmitters

90. Electric firing must not take place near a source of radio frequency radiation (the minimum permissible distance being determined in accordance with Australian Standard 2187 "SAA Explosives Code").

Portable radio transmitters

91. (1) The power switch on a portable radio transmitter must be in the "Off" position at all times while detonators are outside the magazine and above ground, unless the transmitter is a safe distance from all points in the firing circuit (as determined in accordance with Australian Standard 2187 "SAA Explosives Code").

(2) During firing operations, radio transmission must not take place unless—

(a) the transmitter is outside the minimum distances that apply in subregulation (1);

or

(b) the transmission is an essential part of a geophysical exploration operation.

(3) When a firing operation is being carried out in an area where a portable radio transmitter other than those used by the firing crew may be present, appropriate signs must be displayed in accordance with regulation 37 to ensure that every person in the vicinity complies with subregulation (1).

Misfires

92. (1) Where a charge prepared for firing by a safety fuse misfires, a person must not approach the charge for at least 30 minutes.

(2) Where a charge prepared for firing by an electric current misfires, a person must not approach the charge unless—

(a) at least 10 minutes have elapsed since the attempted firing;

and

(b) the firing cables have been disconnected and short-circuited.

(3) Where a charge has misfired, no attempt may be made to withdraw it from the hole, but an attempt must be made to remove the stemming, either by high pressure water, or by a mixture of compressed air and water, applied through a copper tube or a rubber hose that does not have ferrous metal at its free end (although where the charge was blasting powder and the firing mechanism was a safety fuse only, the charge may also be removed by using a copper pricker).

(4) If the stemming is removed, a further priming charge must be placed and fired to explode the original charge.

(5) If a charge of ammonium nitrate mixture that has a single primer originally located below the charge fails to explode after being reprimed in accordance with subregulation (4), an attempt must be made to wash the explosive out of the hole and, if this is successful, a further primer must be placed and fired to detonate the original primer.

(6) Where—

- (a) it is found to be impracticable to remove the stemming in accordance with subregulation (3);
- (b) it is found to be impracticable to wash out a charge of ammonium nitrate mixture in accordance with subregulation (5);

or

- (c) a charge of explosive (other than that described in paragraph (b)) fails to explode when reprimed and fired in accordance with subregulation (4),

the person supervising the firing operations must consult with the operator, the person who bored the hole and an inspector to determine what should be done to clear up the misfire.

(7) Where, after a misfire, one work shift relieves another, the supervisor of the outgoing shift must inform the supervisor of the incoming shift (verbally and in writing) of the number and position of the outstanding misfired shot or shots.

(8) Where a misfire cannot be cleared up before the cessation of work for the day, the supervisor must—

- (a) cause a barricade or other suitable structure to be erected to prevent persons from approaching the misfire;

and

- (b) cause appropriate signs to be displayed in accordance with regulation 37 to warn persons of the danger.

(9) If, after consultation in accordance with subregulation (6), it is decided to abandon a misfire—

- (a) a report on the location and circumstances of the misfire must be immediately furnished to the Director;

and

- (b) if any part of the charge is within 15m of the surface of the land, the location must be marked by a permanent marker post acceptable to an inspector.

Damaged wires

93. A damaged lead, or a damaged firing cable or other wire, must not be used in a firing circuit.

Inspection after firing

94. Before a person proceeds to inspect a hole or charge that has been fired, or attempted to be fired, the person must ensure that the connection between the exploder and the firing line is broken and the wires short-circuited.

Abandoning a shot point

95. Before abandoning a shot point, any portion of a charge that has been blown from the shot hole must be destroyed, and all other waste removed.

Preloading

96. (1) Where a shot hole is preloaded in an inhabited area, the firing wires must be short-circuited and concealed until they are connected to the firing circuit, and appropriate signs displayed in accordance with regulation 37 to warn people of the danger from explosives.

(2) A preloaded shot hole must be fired as soon as practicable after it is charged.

Adverse weather conditions

97. (1) A shot hole loading operation must not be carried out during a thunderstorm or duststorm, high winds or heavy rain.

(2) If a thunderstorm threatens while a shot hole is being loaded, or after a shot hole has been loaded, the operation must immediately stop, and the following steps must be immediately taken:

- (a) the hole must be covered with suitable waterproof material (except in the case of a seismic shot hole that is filled with water);
- (b) unloaded detonators and other explosives must be immediately returned to their respective magazines or containers;

and

- (c) portable magazines and containers must be moved to a distance of at least 250m from the nearest established road, railway or building (or as near as possible to that distance).

(3) Any person who is not required to carry out work under subregulation (2) must immediately proceed to a safe place.

DIVISION II—USE OF EXPLOSIVES IN WELLS

General

98. (1) This Division applies to the use of explosives in down-hole perforating, back-off shooting, the explosive cutting of tubulars or junk, fracturing, wire-line sampling, wire-line formation testing or other operations of a similar nature in connection with petroleum exploration or production operations.

(2) Where there is an inconsistency between this Division and Division I, this Division prevails.

Competence of workers

99. (1) The use, handling, preparation and firing of explosives under this Division, and the disposal of any resultant misfires, must be done by or under the direct supervision of a competent person who is experienced in the use of explosives for such purposes, is of or over the age of 18 years, and has good command of the English language.

(2) Where explosives are being handled in accordance with subregulation (1), the provisions of regulation 92 will not apply.

Safety of rig personnel

100. (1) During an operation involving loading, connecting, running or recovering a tool charged with explosives, only work that is essential to the immediate operation may take place on the rig floor, and only those persons who are required to carry out that work may remain on the rig floor.

(2) All other persons must remain at a safe distance.

Radio transmitters

101. Except in the case of an emergency, any radio transmitter that is not a safe distance away from the firing circuit of a tool that is charged with explosives and ready to run in the hole (as determined in accordance with Australian Standard 2187 "SAA Explosives Code") must be shut down until the tool has been retrieved and the firing cable and detonator disconnected.

Operations during darkness

102. (1) A down-hole shooting operation must, as far as practicable, be carried out during daylight hours.

(2) An explosive tool must not be loaded on the well site during the hours of darkness.

Shut-down of electrical generating plant

103. Insofar as may be appropriate, generating plant must be shut down while a tool that is charged with explosives is being prepared for running in the hole or is connected to the firing cable, and until the tool has been run to at least 30m below ground level (except where the operation is being carried out during the hours of darkness, in which case sufficient lighting may be provided to permit the safe handling of the explosive tool).

Earth-return electrical systems

104. An earth-return electrical system must not be used on a rig or close to a well during an operation involving the use of explosives.

Adverse weather conditions

105. Work involving the use of explosives must not be undertaken during a thunderstorm or duststorm, high winds or heavy rain.

Safety on the floor

106. Before a down-hole shooting operation commences, the rig floor at the site must be washed clean and unnecessary obstructions removed.

Earthing

107. Before firing circuits are completed—

(a) the drilling rig and any ancillary equipment, the service unit and cabin, and any other equipment used for or in connection with perforating or any other down-hole shooting operation, must be efficiently earthed;

and

(b) electrical bonding must be established between the equipment and the wellhead.

PART VI GEOPHYSICAL AND GEOLOGICAL EXPLORATION

Application

108. Subject to a specific provision in a particular regulation to the contrary, this Part applies to all geophysical and geological operations carried out in the search for petroleum.

Notice to commence

109. (1) Unless otherwise approved by the Director, an operator must, at least six weeks before the proposed commencement of a geophysical or geological operation, submit for the approval of the Director a geophysical or geological exploration programme.

(2) The programme must be submitted in a manner and form acceptable to the Director.

(3) The operator must include in the material submitted under this regulation details of any requirement imposed by a government authority in relation to the proposed operation.

(4) The Director may give his or her approval subject to such conditions as the Director thinks fit.

(5) An operator must not commence a geophysical or geological operation unless or until the Director's approval is given.

(6) In addition to the requirements of subregulation (3), the operator must promptly advise the Director of any requirement subsequently imposed by a government authority in relation to the relevant operation.

Form of surveys, maps, etc.

110. Unless the Director otherwise approves, a survey, map, data plot, location plan or profile submitted to the Director for the purposes of this Part must use (and only use) Australian Geodetic Datum and Australian Height Datum.

Operations near mines and quarries

111. (1) The operator must notify the Director of any plan to carry out a seismic operation within 300m of a mine or quarry under the *Mines and Works Inspection Act, 1920*.

(2) The Director may require that the seismic operation be carried out in accordance with special requirements determined by the Director (and the operator must comply with those requirements).

Operations on roads and in inhabited areas

112. (1) Where a geophysical or geological operation is to be carried out on a road or track ordinarily used by the public, or in the vicinity of an inhabited area, the operator must, in addition to complying with section 48 of the Act, give written notice of the proposed operation to any council under the *Local Government Act, 1934*, in whose area the road, track or inhabited area is situated.

(2) Where a geophysical or geological operation is to be carried out on a public road or track within the area of a council under the *Local Government Act, 1934*, the operator must not commence the operation without the approval of that council.

(3) A wooden stake, spike, pin or other pointed object must not, in the performance of any geophysical or geological operation, be driven into the carriageway of a road or track.

(4) Where a seismic survey is to be carried out in the vicinity of a building or public utility, all reasonable steps must be taken to ensure that the operation does not cause any damage, or inconvenience any person.

Marking seismic lines

113. A permanent marker must be set in place at the intersections of survey lines, at the intersection of a survey line and a road that has been formed or graded, and at intervals on each survey line of not more than five kilometres.

Shot points near buildings and public utilities

114. (1) Unless otherwise approved by the Director, a shot point must not be located within—

- (a) in the case of a shot hole—100m;
- (b) in the case of a vibratory or other surface seismic source—20m,

of a well, production facility, pipeline, monument, building or heritage item or site, or public utility.

(2) If a seismic line is to cross a pipeline—

- (a) reasonable notice of the proposed crossing must be given to the owner of the pipeline;
- (b) the owner must be given a reasonable opportunity to inspect the site and to consider the implications of the proposed crossing;

and

- (c) if appropriate, an earth ramp must be constructed over the pipeline before earth-moving equipment or heavy vehicles begin crossing the pipeline.

Shot hole temporary plug

115. Unless the Director otherwise approves, when a drilling crew is so far in advance of a firing crew that a shot hole will not be fired immediately after completion of the drilling, a temporary plug or cover must be placed in or over the shot hole until the firing crew is ready to fire the charge.

Permanent shot hole plugs

116. (1) Unless the Director otherwise approves, a shot hole must be suitably plugged with consolidated earth after firing, and the disturbed area restored, so far as is practicable, to its original state.

(2) Any damage caused by the cave-in or collapse of a shot hole must be restored.

Uncontrolled flow of water

117. (1) If a flow of artesian water is encountered during seismic drilling operations, or is detected at a subsequent time, it must be controlled.

(2) The Director must be notified of the flow, and the steps taken to control it.

(3) The Director may require that additional steps be taken to control the flow.

Submission of reports and data

118. (1) Reports and data must be submitted to the Director, in a manner and form acceptable to the Director, by the operator within six months of completion of any seismic, gravimetric or airborne geophysical operation.

(2) Where so recorded, all basic geophysical field data must be submitted in a digital form acceptable to the Director.

(3) The operator must, within six months of completion of any other type of geophysical survey or any major geological survey, submit a full report on the findings of the survey to the Director (including geological maps, measured sections and other basic data obtained by the survey).

(4) The operator must, during the course of a geophysical survey, submit to the Director progress reports at weekly intervals, or at such other intervals as the Director may require or approve.

(5) Preliminary plots of data (such as shot hole location plans, cross-sections, gravity profiles and magnetic profiles) must, as soon as they are available, be included in the reports.

(6) A report under subregulation (1) or (3) must be accompanied by a film or other transparent copy of each plan that is larger than A3 paper size.

Submission of data on relinquishment

119. (1) The operator must, within three months of relinquishment of any portion of a petroleum exploration or production licence, submit to the Director all data derived from field operations on the relinquished area that has not previously been submitted to the Director.

(2) The results of geological surveys must include all maps, sections and other relevant data.

Storage of digital data

120. The Director may approve storage arrangements other than within the Department of Mines and Energy for digital data that must be submitted under regulation 118 or 119.

**PART VII
DRILLING AND WORKOVER**

DIVISION I—GENERAL

Approval to commence operations

121. (1) An operator must, before commencing a drilling operation, submit a well programme for the approval of the Director (and the operator must not commence the operation unless or until that approval is given).

(2) The well programme must be submitted in a manner and form acceptable to the Director and must include—

(a) a geological prognosis that includes structure maps of significant seismic and geological horizons, details of the primary and other target formations, and estimates of the hydrocarbon potential of each objective horizon;

and

(b) detailed information relating to the proposed drilling and well construction programme.

(3) The Director may give an approval under this regulation subject to the operator complying with conditions specified by the Director.

(4) The operator must not breach, or fail to comply with, a condition imposed under subregulation (3).

On-going approvals

122. (1) An operator must not—

(a) complete, recomplete or stimulate a well;

(b) repair a well so that the completion differs significantly from the situation that existed before the repair was required;

(c) suspend operations on a well;

(d) vary an approved well programme;

or

(e) abandon a well,

without the approval of the Director.

(2) An approval under this regulation may be requested orally, and granted orally, but must be subsequently confirmed in writing.

(3) This regulation does not prevent or restrict a person taking emergency action to protect any person or property, although if emergency action is taken, the operator must provide a report to the Director as soon as practicable after the event.

Conversion of wells into water wells

123. (1) When, for the purpose of drilling a well, an operator—

(a) obtains a right of entry from an occupier of land;

or

(b) gives an occupier notice of an intention to enter land,

the operator must raise with the occupier the possibility of converting the well into a water well should the well not be capable of producing petroleum in commercial quantities.

(2) The operator must furnish the Director with copies of any correspondence entered into for the purposes of subregulation (1).

(3) If it is decided to convert a well into a water well, the operator must furnish details of the proposed conversion to the Director for his or her approval as soon as practicable after the decision is made.

Location surveys

124. (1) Subject to this regulation, as soon as practicable after the location of a well is established, but in any event not later than two months after the drilling rig is released (or such longer period as the Director may allow), the operator must determine the location and elevation of the well in accordance with this regulation.

(2) A survey undertaken for the purposes of subregulation (1) must, unless otherwise approved by the Director—

(a) be tied as to the horizontal position—

(i) to a control point in the State Primary Geodetic Survey within the Australian Geodetic Datum or a station derived therefrom, or to a point in a cadastral or other survey approved by the Surveyor-General;

and

(ii) to two reference marks established not more than 200m from the well site;

and

(b) be tied as to elevation—

(i) to a heighted control point within the Australian Height Datum, or to a heighted control point derived therefrom;

and

- (ii) to a reference bench mark established not more than 200m from the well site.

(3) The accuracy of the survey must be such that—

- (a) the well location will not be in error by more than one metre in any direction for each 10 kilometres of distance from, and relative to, the initial control point;

and

- (b) the difference in elevation between the wellsite and the reference bench mark, and the Datum heightened control point, measured in metres, is not in error by more than one-tenth of the square root of the distance, measured in kilometres, from the well to the heightened control point.

(4) The operator must, as soon as practicable after the survey is completed but in any event not later than one month after its completion, submit to the Director a plan certified as correct by a surveyor registered in accordance with the *Surveyors Act, 1975*, which shows—

- (a) the location of the well relative to the horizontal control point;
- (b) the well name and number;
- (c) the heightened control point and the bench mark referred to in subregulation (2)(b) (together with reasonable particulars);
- (d) any other well and all roads, public utilities or substantial buildings or other structures within 300m of the well;

and

- (e) where applicable, the boundaries and legal description of the section of land within which the well is situated.

(5) A plan under subregulation (4) must also indicate—

- (a) the co-ordinates of the well in the Australian Map Grid 84 (AMG 84) values, and the latitude and longitude of the well in the Australian Geodetic Datum 84 (AGD 84) values, computed within the accuracy limits of the survey specified by subregulation (3);

- (b) the direction of true north;

- (c) ground level at the well site;

and

- (d) any permanent reference marks established in accordance with these regulations.

Evaluation of an occurrence of petroleum

125. If the Director considers that an operator is not carrying out sufficient coring, logging or testing to evaluate the occurrence, or potential occurrence, of petroleum, the Director may require the operator to carry out such coring, logging or testing operations as the Director thinks necessary and reasonable in the circumstances.

Prohibited drilling areas

126. (1) A well must not be drilled within 75m of a railway, pipeline, cable, high voltage power line or other service facility without the approval of the Director.

(2) A well must not be drilled within three kilometres of subsurface mine workings without the approval of the Director.

(3) The Director may give an approval under this regulation subject to the operator complying with conditions specified by the Director.

(4) The operator must not breach, or fail to comply with, a condition imposed under subregulation (3).

Restoration of site

127. On the suspension, completion or abandonment of a well, the operator must, as soon as practicable, restore the well site so that it is commensurate with future operations and must, so far as may be practicable, re-establish any interrupted drainage channels and the surrounding areas to the well site to their original condition.

Failure to fulfil conditions

128. (1) If the suspension, completion or abandonment of a well is not carried out in a manner approved by the Director, the Minister may cause the suspension or abandonment to be carried out in accordance with the requirements of the Director.

(2) Any expense incurred under subregulation (1) may be recovered as a debt due to the Crown from the operator in a court of competent jurisdiction.

Oil or gas lost or used during repair operations

129. Unless otherwise approved by the Director, the quantities of all oil or gas lost by burning, venting to the atmosphere, flaring or mixing with other circulating fluids in the course of any well repair, recompletion or other similar operation must be reported to the Director as soon as practicable after the relevant event.

Well records

130. The operator must keep accurate records relating to the drilling, testing, casing, completing, repairing, recompleting, stimulating, plugging or abandoning of each well.

Daily reports

131. (1) The operator must, with reasonable particularity, prepare daily reports on each well that is being drilled, tested, completed, repaired, recompleted, stimulated, plugged or abandoned.

(2) The operator must furnish the Director with a copy of each report as soon as practicable after it is prepared.

(3) Each report must be submitted in a manner and form acceptable to the Director.

Wellsite reports

132. (1) A copy of each tour report, including rig moves within the State, must be furnished to the Director on a monthly basis, or on a well by well basis, whichever is the lesser period.

(2) A tour report must reach the Director within two weeks after the end of the period to which it relates.

(3) Logs and other records and reports that are made at or near a well must be furnished to the Director as soon as practicable after they are prepared.

Final well reports

133. (1) Two copies of a final well report, one of which must be in loose-leaf form, must be furnished to the Director within six months after the date of rig release from a well.

(2) The report must be an accurate record of the drilling and completion or abandonment of the well, and must be in such form, and contain such material, as may be acceptable to the Director.

(3) In the event of a well repair, recompletion or other operation in which the previous completion of the well is in any way modified, a revised down hole drawing, detailing the final installation, must be furnished to the Director within six weeks after the completion of the operation.

(4) If a plan or composite log submitted under this regulation is larger than A3 paper size, a film or other transparent copy of the plan or log must also be submitted.

Special studies

134. Reports of technical studies on samples and cores obtained from wells (including palaeontology, permeability, porosity, fluid saturations, relative permeability, capillary pressure and fluid analysis) must, where for any reason not included in the final well report, be furnished to the Director as soon as they become available.

Deviation surveys

135. (1) Unless otherwise approved by the Director, the operator must carry out tests at intervals of not more than 200m to ascertain the deviation of a well from vertical.

(2) The Director may at any time direct the operator to conduct a directional survey to establish the location of any point in a well.

(3) Where the vertical projection to the surface of any point at which a well intersects a producing zone is nearer to a petroleum title boundary than 50m, the well must not be brought on to production without the approval of the Minister.

DIVISION II—OPERATIONAL REQUIREMENTS

Casing

136. (1) A well must be lined with casing that conforms with A.P.I. specifications, or to such other specifications as may be acceptable to the Director, and that provides adequate protection for petroleum and water zones in accordance with the approved well programme.

(2) Conductor pipe must be installed in a well to protect the well and equipment against surface formation instability and to enable the circulation of drilling fluid from the well before surface casing is installed.

(3) Surface casing must be set at least 25m into a competent formation, and minimum surface casing requirements are—

(a) 200 metres;

and

(b) —

(i) in relation to an exploration well where normal pressure gradients are anticipated—at least 15 per cent of the total depth to which uncased hole will be drilled to a depth of 2 500m, plus 5 per cent of the incremental depth of uncased hole beyond 2 500m;

(ii) in relation to an appraisal or development well where normal pressure gradients are known to exist—at least 10 per cent of the total depth to which uncased hole will be drilled,

(although the Director may specify or approve another depth in a particular well or area).

(4) Where evidence indicates the possibility of above normal formation pore pressure in a well, the surface casing design must be considered on a well by well basis.

(5) Where—

(a) abnormal pressure, lost circulation or unstable zones are known or expected in a well;

or

(b) artesian water, high mud weights or extensive drilling time may lead to down-hole problems in a well,

consideration must be given to setting an intermediate casing string.

(6) Unless otherwise approved by the Director, production casing or liner must be set and cemented before completing a well for production.

(7) The design and placement of casing strings must take into account known or predicted formation strengths, maximum anticipated pressures, temperatures and mud weights, and the support of blow-out prevention equipment, using appropriate factors of safety and minimum performance properties for the casing.

(8) Before drilling out of the casing shoe or, in the case of production casing, before proceeding with drilling or well completion operations, all casing strings (other than the conductor pipe) must be pressure tested to pressures consistent with the parameters used in the design of the casing string.

(9) The results of a test under subregulation (8) must be reported in the daily drilling report.

(10) When a casing liner is run in a well, there must be an overlap of at least 30m between the top of the liner and the shoe of the previously run string of casing.

(11) Casing and tubing recovered from a well must not be re-used in another well unless it has been inspected in accordance with A.P.I. RP 5C1, "Recommended Practice for Care and Use of Casing and Tubing", and its physical characteristics determined to ensure that the casing will continue to comply with this regulation.

(12) Unless otherwise approved by the Director, a well (other than a plugged and abandoned well) must be equipped so that the pressure in each annulus may be measured.

Cementing of casing

137. (1) Casing strings must be cemented in a way that ensures that all zones that contain movable petroleum, and all aquifers, are covered or isolated by cement.

(2) The conductor pipe and surface casing must be cemented with sufficient cement to fill the annular space between the casing and the wall of the hole (or next outer casing) from the shoe of the conductor pipe or surface casing to the surface.

(3) If cement returns are not obtained at the surface, the uncemented casing annulus must be fully cemented from the surface, in accordance with good oilfield practice.

(4) Intermediate and production casing strings and liners must be cemented with sufficient cement to fill the annular space between the casing and the wall of the hole, or the next outer casing, as follows:

- (a) from each cementing point (including the casing shoe) to at least 150m above the cementing point;
- (b) to at least 100m above any zone not previously cased that contains petroleum;
- (c) to at least 30m above all zones that contain potentially useful or corrosive water.

(5) In the case of a liner that is used as intermediate or production casing, the overlap between the liner and the next larger casing previously set must be cemented with sufficient cement to fill at least 30m of the annular space between the liner and the next larger casing, unless provision is made for the overlap to be sealed in some other manner acceptable to the Director.

(6) If the cementing requirements of the approved well programme have not been achieved by primary cementing operations, as ascertained by a method acceptable to the Director, the operator must comply with those requirements by recementing or by remedial cementing (unless otherwise approved by the Director).

(7) Sufficient time must elapse after each cementing operation to allow the cement to set before further operations on the well are commenced.

(8) During a cementing operation, only those persons who are actually engaged in the operation may remain on the rig floor, near the wellhead or near the cementing equipment.

(9) All high pressure pipes fitted with flexible joints must be securely anchored and pressure tested before cementing operations commence.

(10) A person working on cement mixing must wear appropriate protective equipment and clothing and the operator must ensure that suitable facilities are available for washing eyes.

Formation integrity tests

138. (1) Unless otherwise approved by the Director, after drilling out the casing shoe of surface and intermediate casing strings, a formation integrity test must be conducted to establish that the formation strength at the casing shoe is adequate to sustain the pressures (taking into account the potential volume of any influx of formation fluid) that are expected to be imposed at the casing shoe during subsequent drilling operations.

(2) If, as a result of such a test, it is decided that the drilling and casing programmes previously approved by the Director must be amended, the operator must submit those amendments to the Director.

(3) A formation integrity test need not be performed if the proposed drilling is in an area where previous drilling has established reliable fracture gradient data for the formations below the casing that are proposed to be drilled by the well.

Samples

139. (1) Unless otherwise approved by the Director, the operator must, as appropriate, take, preserve and maintain a series of cutting samples of not less than 100 grams (dry weight) of the various formations that the drill penetrates during the drilling of a well.

(2) For the purposes of subregulation (1), the samples must be taken at three metre intervals, or such other intervals as may be required or approved by the Director.

(3) The samples must be washed, dried, packed and labelled with the name and number of the well and the interval of depth, and must then be delivered (as soon as practicable but in any event within two months of rig release), at the operator's expense, to the Core Store of the Department of Mines and Energy.

Cores

140. (1) Core must be placed in proper core boxes, accurately labelled with the well name and number, number of core, top and bottom of core, interval cored and recovery of core, and must then be delivered (as soon as practicable but in any event within two months of rig release), at the operator's expense, to the Core Store of the Department of Mines and Energy.

(2) At least half of each 300mm of core recovered must be forwarded to the Core Store under subregulation (1).

(3) If, by arrangement with the Director, vertical splitting has been undertaken, a continuous section comprising at least a third of the core must be provided.

(4) Notwithstanding subregulation (2), an operator may retain all cores from productive intervals (whether potential or actual) on the following basis:

- (a) the core must be used for reservoir or other allied investigations, and must not be disposed of or destroyed in any other way;

(b) core must be delivered to the Core Store as soon as practicable after the completion of the investigations;

(c) the results of those investigations must be reported under regulation 134;

and

(d) if the operator decides to send any of the core out of Australia, the operator must notify the Director before the core leaves the country.

(5) If core is to be sent out of Australia—

(a) the Director may require that up to 25 per cent of the core remain in the State;

and

(b) any undestroyed portion of the core must be forwarded to the Core Store when it is no longer needed.

(6) The Core Store will, at the request of an operator, provide storage facilities for whole core taken from a well.

Age dating of samples

141. The operator must take all reasonable steps to ascertain, by palaeontological, radiometric or other suitable means, the ages of all undated rocks penetrated by a well.

Fluid samples

142. (1) All formation fluid recovered from formation tests or non-routine production tests must, insofar as may be practicable, be sampled in accordance with A.P.I. RP44 "Recommended Practice for Sampling Petroleum Reservoir Fluids".

(2) The samples must be labelled and analysed, and liquid samples must be preserved for at least six months.

(3) Results obtained from the analysis of samples must be furnished to the Director as soon as practicable after they are obtained.

Formation and water shut-off tests

143. (1) An operator must take all reasonable steps to notify the Director of a proposed drillstem test or water shut-off test.

(2) If a formation test results in the discovery of a new pool of petroleum, the operator must notify the Director as soon as practicable after the discovery is made.

(3) In addition to the requirements of subregulations (1) and (2), an operator must furnish the Director with—

(a) a copy of the relevant operational report;

(b) a legible copy of the pressure recorder chart for each drillstem or other test taken at the well;

and

(c) an interpretation of those tests.

Electric or other well logs

144. (1) Unless otherwise approved by the Director, an operator must ensure, before a drilling well is cased (other than with surface casing), completed or abandoned, that a suite of wireline logs is run and recorded.

(2) The suite must at least be sufficient to provide a proper determination of—

- (a) formation porosity;
- (b) formation fluid saturation;
- (c) stratigraphic correlation with surrounding wells;

and

(d) if inadequate control exists in the vicinity of the well, velocity control.

(3) The following must be furnished to the Director—

- (a) a copy of each log run (which must be forwarded as soon as it is recorded);
- (b) stable base transparencies of each log (which must be furnished as soon as practicable after they are made);

and

(c) magnetic tape or other digital log data in a form acceptable to the Director (which must be furnished as soon as practicable after they become available).

Controlled deviation

145. (1) Subject to subregulation (2), a well must not be directionally drilled without the approval of the Director.

(2) Directional drilling may be carried out without the approval of the Director if the drilling is for a short distance to straighten a hole, sidetrack junk, or correct other mechanical difficulties.

Protection of aquifers

146. All reasonable steps must be taken during an operation on a well to prevent communication between, leakage from, or the pollution of, aquifers that serve, or could serve, any useful purpose.

Abandonment

147. Unless otherwise approved by the Director, the following provisions apply in relation to the abandonment of a well—

- (a) cement plugs must be placed in the uncased portions of a well so as to provide a minimum of 30m of cement above and 30m of cement below any significant oil or gas zone, or aquifer;
- (b) in a cased hole where there is open hole immediately below the casing—
 - (i) a cement plug must be placed in the deepest cemented casing string from at least 30m below to 30m above the casing shoe;

or

 - (ii) a cement retainer must be set not less than 10m and not more than 30m above the casing shoe with a cement plug designed to extend from 30m below the casing shoe to 15m above the retainer;
- (c) if the recovery of casing has exposed an open hole, the shoe of the next larger size casing above the open hole must be plugged in the manner described in paragraph (b) (but if no casing shoe exists above the casing cut, a cement plug must be placed so as to extend from at least 30m below to 30m above the cut);
- (d) if the casing has been perforated, cement plugs must be placed to isolate the perforations and so that the plugs extend at least 30m above the top perforations and, where practicable, at least 30m below the bottom perforations;
- (e) in a cased hole containing a liner or liners, a cement plug must be placed immediately above each liner hanger to extend at least 30m above the liner hanger;
- (f) a surface cement plug extending at least 15m below the surface must be placed in the innermost string of casing that extends to the surface;
- (g) any annular space that extends to the surface, and which is open to drilled hole, must be plugged with sufficient cement to fill at least 30m of the annular space;
- (h) the location and integrity of cement plugs must be tested in a manner acceptable to the Director;
- (i) any intervals of cased hole between cement plugs must be filled with fluid that is of an appropriate density and suitably inhibited to prevent any corrosion of the casing;
- (j) blowout preventers must not be removed until all plugs that are required to isolate the open hole have been set and their location and integrity satisfactorily determined;
- (k) unless otherwise approved by the Minister, no casing may be recovered if its recovery would expose any abnormal pressure, lost circulation or petroleum or water zone;

and

- (l) unless otherwise approved by the Director, a steel well marker plate must be installed at least two metres above ground level, and that plate must—
 - (i) be welded to a suitable steel post that is in turn welded to the casing head or outermost casing stub;

and

- (ii) have the well name and number bead-welded to it.

Well completion

148. (1) The surface and subsurface equipment of a completed well must (where applicable) be arranged to permit the ready measurement of the pressure and temperature at the wellhead and at the bottom of the hole (closed in or flowing), and to permit any other generally recognized test to be carried out.

(2) The surface equipment must be fitted with sampling connections.

(3) The operator must, on completion and any recompletion of a well, keep and made readily available to an inspector an accurate record of all subsurface equipment and junk in the well.

(4) Before opening a well to production, and after every major repair, recompletion or workover, the wellhead must be pressure tested and the flow line inspected to ensure satisfactory make-up.

Disposal of produced oil and gas

149. (1) Any oil or gas that is circulated out of, or produced from, a well during a drilling, testing or repair operation, and that is not flowed through the well's flowline to a gathering facility, must be flowed through an appropriate manifold and properly staked temporary flow line to a storage tank or flare.

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(4) If petroleum is flowed to a flare during an operation referred to in this regulation, the flare must be kept, so far as may be possible, continuously alight.

Disposal of waste materials

150. (1) All waste materials from work on a well or produced from a well as it cleans up (whether or not contaminated with oil) must, unless otherwise removed from the well site to a satisfactory storage, be dumped or drained to a waste sump.

(2) A waste sump referred to in subregulation (1)—

- (a) unless it only contains clean water—must be adequately fenced (and the fencing, if removed during an operation, must be replaced immediately after the operation is completed);

and

- (b) must incorporate every reasonable precaution to prevent pollution of surface and underground water through seepage.

Replacement of well site fencing

151. If fencing protecting the wellhead from outside interference is removed during an operation, the fencing must be replaced immediately after the operation is completed.

Penetration, etc.

152. A drilling rig, while engaged in drilling operations, must be fitted with equipment that provides a continuous recording of the penetration rate.

Detection of petroleum

153. (1) Suitable equipment must be available on or near a drilling rig so as to permit the detection of petroleum in cuttings, cores and mud.

(2) Unless otherwise approved by the Director, a mud gas detector capable of detecting hydrocarbons and hydrogen sulphide must be installed before surface casing is drilled out, and that detector must be continuously operated during drilling operations after the surface casing is set.

(3) In addition to the requirements of subregulations (1) and (2), other equipment for formation testing and sampling, both in the open hole and through casing perforations, must be readily available.

DIVISION III—SAFETY IN DRILLING OPERATIONS

Exemptions

154. (1) Where the Director is satisfied—

- (a) that compliance with a requirement of this Division is, in a particular case, unnecessary, impracticable or undesirable;

and

- (b) that alternative action, that is at least as safe as a requirement of this Division, will be taken and that, in the circumstances of a particular case, it is appropriate to do so,

the Director may exempt any person or class of persons from the duty to comply with the particular requirement.

(2) The Director may grant an exemption under subregulation (1) on his or her own initiative or on the application of any person.

(3) The Director may grant an exemption under subregulation (1) on such conditions, and subject to such limitations, as the Director thinks fit.

(4) Where—

- (a) a person contravenes or fails to comply with a condition of an exemption;

or

(b) the Director is satisfied—

(i) that the circumstances under which an exemption was granted have altered;

or

(ii) that in the interests of health or safety it is necessary to do so,

the Director may revoke the exemption (either as it applies to a particular person, or generally).

Equipment to comply with certain standards

155. (1) Unless otherwise authorized by the Director (and such authorization will not be given unless the Director is satisfied that proper standards of safety will not be affected), materials and equipment used in a drilling operation must conform with the standards prescribed by this regulation and must be of such size and pressure rating as to withstand safely the loads and pressures that are likely to be encountered during the drilling operation.

* * * * *

(4) Well casing and tubing (other than conductor pipe) must be in accordance with the relevant requirements of A.P.I. Spec. 5CT, "Specification for Casing and Tubing", or of equivalent standard.

(5) Drill pipe must be in accordance with the relevant requirements of A.P.I. Spec. 5D, "Specification for Drill Pipe", or of equivalent standard.

(6) Wellhead equipment must be in accordance with the relevant requirements of A.P.I. Spec. 6A, "Specification for Wellhead Equipment".

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Masts and derricks

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(4) A mast or derrick that is of a height exceeding 30m above ground level must be fitted with a mast head light and that light must be kept illuminated during the hours of darkness.

(5) Where the safe bearing capacity of soils on the location would otherwise be exceeded, supplemental footings must be provided to distribute concentrated loads from the mast or mast mounts, or from the derrick, to the ground.

(6) Supplemental footings provided under subregulation (5) must be capable of distributing the loads that are anticipated during drilling operations, and, in the case of a mast, while raising and lowering the mast.

(7) A well site must be graded and adequately drained.

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Blowout prevention

161. (1) Proper blowout prevention equipment must be fitted whenever a well is being drilled, tested, completed or worked over.

(2) For the purposes of subregulation (1), the casing and equipment must be adequate for the circumstances of the particular case, taking into account—

- (a) the depth to be drilled; and
- (b) maximum expected formation pressures; and
- (c) the need, in the event of an influx, to effect a shut-off on an open hole, or around a tool (including drill collars, drillpipe, tubing or casing) being used in the well.

(3) Hydraulically operated blowout prevention equipment—

- (a) must be installed, operated and tested, in accordance with the relevant requirements of A.P.I. Specification RP 53 *Recommended Practices for Blowout Prevention Equipment Systems*, before drilling is undertaken below the surface casing string, or before a completed well is re-entered; and
- (b) subject to these regulations, must be maintained ready for use until suspension, completion, recompletion or abandonment operations are completed.

(4) Any manual control for blowout preventers must be located outside the rig substructure at the greatest practicable distance from the wellhead.

(5) Whenever a drilling or workover operation is being undertaken, an inside blowout preventer assembly, and a full opening safety valve in the open position, with cross-overs as needed to fit all tool joints in the drill or tubing string, must be maintained on the rig floor.

(6) An upper kelly cock must be installed below the swivel and, if high pressures are anticipated, another kelly cock that can be run through the blowout preventers must be installed at the bottom of the kelly.

(7) Choke and kill lines of flange, weld or clamp connected steel, or fire resistant hose, must be fitted and equipped in accordance with A.P.I. Specification RP 53 *Recommended Practices for Blowout Prevention Equipment Systems*.

Blowout preventer closing units

162. (1) Blowout preventer activating accumulator units, that accord with the relevant requirements of A.P.I. Specification RP 53 *Recommended Practices for Blowout Prevention Equipment Systems*, must be located a safe distance from the wellhead and, without accumulator pump assistance, must have sufficient capacity to—

- (a) open or close the hydraulically operated choke line valve; and
- (b) close or open the annular type blowout preventer; and
- (c) close or open two blowout preventer pipe rams.

(2) Accumulator pumps must be capable of rebuilding fluid pressure in the accumulator within three minutes to a level that is sufficiently high to—

- (a) open the hydraulically operated choke line valve; and
- (b) close the annular type blowout preventer.

(3) Subject to subregulation (4), accumulators must be connected to the blowout preventers by lines that have a safe working pressure at least equal to the working pressure of the accumulator, and if those lines are located within and adjacent to the substructure, must be of steel construction.

(4) Fire resistant hose, installed and maintained to the manufacturer's specifications, may be used on blowout preventers rated at 35 Mpa or less.

(5) Accumulator pumps must have two independent sources of power.

(6) An inert gas pressure backup system must also be fitted on each drilling rig when drilling open hole below surface casing.

(7) During a drilling or workover operation, a control manifold for operating the blowout preventers must be accessible to the driller on the rig floor, and a master control unit must be located a safe distance from the well.

(8) The master control unit must be capable of operating all blowout preventer functions in the event that the rig floor controls are rendered inoperable.

Testing blowout prevention equipment

163. (1) Blowout prevention equipment must be tested in accordance with this regulation.

(2) The ram type preventers, the annular preventer, choke and kill lines and valves, the choke manifold, and the kelly cock, must each be pressure tested on installation, prior to drilling out each string of casing, and prior to commencing completion or workover operations.

(3) At least once in every 14 days the blowout preventers and choke manifold must be pressure tested using a suitable testing device.

(4) Each test must use an appropriate liquid and be conducted to pressures consistent with the maximum anticipated wellhead pressure (as approved in the drilling and well construction programme).

(5) The pipe rams, the annular preventer, and all remotely controlled valves, must be function tested, and the manual closing controls checked, at least on a daily basis, and the blind rams operated on each trip out of the hole.

(6) If a test indicates that the equipment is not operating correctly, it must be made serviceable before operations are commenced or recommenced.

(7) Each closing of the blowout preventer system, the reasons for the closing, and the results of all tests, must be included in the tour report.

Removal of blowout prevention equipment

164. (1) Installed blowout prevention equipment must not be removed until reasonable steps are taken to ensure that the well is safe.

(2) The Director must be notified—

- (a) whenever blowout prevention equipment is removed for a reason other than for routine operations; and
- (b) whenever blowout prevention equipment is re-installed.

(3) A notification under subregulation (2)(a) must include the reason for the removal of the equipment and information on the steps taken to make the well safe.

Blowout prevention training and procedures

165. (1) Personnel involved in drilling operations must include—

- (a) an on-site supervisor; and
- (b) a rig worker holding the position of driller, or a more senior position,

who have within the last two years successfully completed an accredited well-control course acceptable to the Director.

(2) Blowout prevention drills must be conducted at least on a weekly basis to ensure that crews are properly trained in emergency procedures.

(3) Each blowout prevention drill, and relevant response times, must be recorded in the tour report and the daily report.

(4) A well-control instruction, setting out step by step procedures to be adopted in controlling pressure kicks, must be kept on permanent display on the rig.

Well drilling fluids

166. (1) The use, properties, and testing of drilling mud, and the conduct of drilling procedures, must be such as to minimise the likelihood of blowout (without inducing unnecessary formation damage).

(2) Sufficient quantities of mud materials to ensure well control must always be readily available at the well site.

(3) Mud testing equipment must be maintained at the well site at all times and tests consistent with good operating practice must be performed daily, or more frequently as conditions warrant.

(4) The mud system must include—

- (a) a mud pit level indicator to indicate gains and losses; and
- (b) a pump stroke counter; and

- (c) a gas detector; and
- (d) a trip tank to indicate the flow of liquid to or from the well bore; and
- (e) a gas separator or gas knock-out pot; and
- (f) unless otherwise approved by the Director, a mud degasser.

(5) When pulling drill pipe or tubing from an uncased or perforated well, the fluid level must be maintained to the extent necessary to provide sufficient hydrostatic pressure to contain anticipated formation pressures safely.

Formation testing

167. (1) When formation testing is to be performed at a well site that is in the vicinity of an inhabited area, all reasonable steps must be taken to warn those persons who could be affected by the testing, and the tests must be conducted in a manner that minimizes the risk of injury to those persons or damage to their property.

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(5) Subject to subregulation (6), if formation fluids are produced into the test string, the formation fluids must be reverse circulated from the test string before the test string is pulled from the hole.

(6) In a cased hole, formation fluids in the test string may be displaced back into the formation from which they were produced.

(7) During formation testing, or the removal of any pipe after a formation test, a competent person must remain at the rig and oversee the operation.

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(9) During formation testing, the annular space of the well must be kept full of drilling fluid of a density adequate to control formation pressure.

(10) When testing in an uncased hole, a reverse-circulating device must be included in the test string.

(11) Fluids brought to the surface during formation testing must be safely and correctly disposed of through an independent test manifold and choke.

(12) Any choke equipment that forms part of the blowout prevention equipment must not be used for flow control during a formation test.

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Weight indicators

172. (1) A drilling rig must be equipped with a reliable weight indicator that allows the driller to determine the hook load being carried on the drilling line.

(2) When the indicator is hung above the floor, a safety wire rope must be attached to the indicator and secured to the mast or derrick.

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DIVISION V—AIR AND GAS DRILLING

Exemptions

194. (1) Where the Director is satisfied—

(a) that compliance with a requirement of this Division is, in a particular case, unnecessary, impracticable or undesirable;

and

(b) that alternative action that is at least as safe as a requirement of this Division will be taken and that, in the circumstances of a particular case, it is appropriate to do so,

the Director may exempt any person or class of persons from the duty to comply with the particular requirement.

(2) The Director may grant an exemption under subregulation (1) on his or her own initiative or on the application of any person.

(3) The Director may grant an exemption under subregulation (1) on such conditions, and subject to such limitations, as the Director thinks fit.

(4) Where—

(a) a person contravenes or fails to comply with a condition of an exemption;

or

(b) the Director is satisfied—

(i) that the circumstances under which an exemption was granted have altered;

or

(ii) that in the interests of health or safety it is necessary to do so,

the Director may revoke the exemption (either as it applies to a particular person, or generally).

General

195. (1) This Division applies whenever air or gas is used as a circulating fluid in rotary drilling operations.

(2) If there is an inconsistency between a regulation under this Division and another regulation, the regulation under this Division prevails to the extent of the inconsistency.

(3) The person in charge of an operation that uses air or gas drilling must, especially in relation to wellhead design and blowout prevention equipment, take into account the recommendations of A.P.I. RP 54, "Oil and Gas Well Drilling and Servicing Operations", Section 17.

Warning notices

196. A warning notice that complies with regulation 37 and that states—

CAUTION—GAS DRILLING IN PROGRESS;

or

CAUTION—AIR DRILLING IN PROGRESS,

(whichever is applicable) must be displayed at each entrance to a place where gas or air drilling is being carried out.

Delivery lines

197. (1) Where gas drilling is carried out and the high pressure delivery line is not protected by burial, warning notices that comply with regulation 37 and that state—

CAUTION—HIGH PRESSURE GAS,

must be displayed to indicate the route of the line.

(2) The main air or gas supply line must be positioned so that—

(a) it does not interfere with vehicular access to the drilling location;

and

(b) it does not cross areas on the drilling location frequented by vehicles and persons.

(3) A check valve must be installed on the delivery line at or near the standpipe.

(4) Each pipe and fitting connected to or used in an air or gas circulating system must have a rating sufficient to withstand the maximum supply pressure.

(5) All pressure lines must be properly restrained and all hoses fitted with clamps and wire rope that is at least 15mm in diameter, or a fastening of equal strength, and secured to adequate supports to prevent dangerous movement in the event of coupling, or near coupling hose, failure.

Vehicles

198. Any vehicle that is not required for an operation on a well must be kept a safe distance from the well.

Fire precautions

199. (1) At least four 9 litre and one 68 litre dry-chemical type extinguishers (or their equivalent) must be kept at strategic locations on or around the rig.

(2) At least one mud gun must be permanently mounted under the substructure and pointed directly at the rotating blowout preventor assembly.

(3) The line between the mud pump and the mud gun must be controlled by a single valve situated at the pump end of the line.

(4) If the mud pump is not to be kept in continuous operation, pump starting controls must be installed both at the pump and at the driller's control panel.

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Mud stocks

207. Mud stocks that are adequate to fill the hole and to establish and maintain circulation—

(a) must be kept on location;

and

(b) must be kept in good condition by frequent mixing so that the mud can be used at any time.

Gas detection equipment

208. A portable gas detector, of a kind acceptable to an inspector, must be available for use at a drilling location where air or gas drilling is in progress.

DIVISION VI—SPECIAL SERVICES

Exemptions

209. (1) Where the Director is satisfied—

(a) that compliance with a requirement of this Division is, in a particular case, unnecessary, impracticable or undesirable;

and

(b) that alternative action that is at least as safe as a requirement of this Division will be taken and that, in the circumstances of a particular case, it is appropriate to do so,

the Director may exempt any person or class of persons from the duty to comply with the particular requirement.

(2) The Director may grant an exemption under subregulation (1) on his or her own initiative or on the application of any person.

(3) The Director may grant an exemption under subregulation (1) on such conditions, and subject to such limitations, as the Director thinks fit.

(4) Where—

(a) a person contravenes or fails to comply with a condition of an exemption;

or

(b) the Director is satisfied—

(i) that the circumstances under which an exemption was granted have altered;

or

(ii) that in the interests of health or safety it is necessary to do so,

the Director may revoke the exemption (either as it applies to a particular person, or generally).

Special services

210. (1) Special services include well logging, perforating, testing, cementing or portable laboratory services, power-tong services, wireline services, coiled tubing operations, acidizing, fracturing, artificial lift or similar services carried out at a well location.

(2) The installation and operation of well pumping units, and the operation of wireline and coiled tubing services, acidizing, fracturing, cementing, hot oil operations and other special services must be carried out in accordance with these regulations and the applicable recommended practices set forth in A.P.I. RP 54, "Oil and Gas Well Drilling and Servicing Operations".

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Swabbing

213. (1) While swabbing operations are being carried out, all engines, motors and other possible sources of ignition that are not essential to the operation must be shut down.

(2) During swabbing operations, the swabbing line must be packed off at the surface so that fluids are directed as much as possible through a closed flow system.

(3) During swabbing operations—

(a) the fluids must be piped directly to a production facility, flare pit, skid or mobile tank located at least 45m from the well;

and

(b) any flare line must incorporate a device to prevent back burning.

(4) Swabbing operations to induce formation flow must not be conducted during the hours of darkness.

Blowout prevention

214. Blowout prevention equipment for workover strings (including coiled tubing and wire line operations) must be installed and tested to the maximum anticipated wellhead pressure before operations are commenced on the well.

**PART VIII
PRODUCTION**

Protection of completed wells

215. (1) Reasonable steps must be taken to protect a completed well and a notice warning persons of the danger that exists in relation to the well must be kept on display in the vicinity of the well.

(2) A well that has not been plugged and abandoned must be inspected at intervals not exceeding six months.

(3) On an inspection under subregulation (2)—

(a) all annulus pressures must be measured;

(b) any evidence of communication must be evaluated;

and

(c) the extent of any necessary repairs or maintenance must be determined.

(4) An operator must, by the end of each month, furnish the Director with a report on the wells visited, and the work carried out on those wells, during the previous month.

(5) A report under subregulation (4) must be furnished in a manner and form acceptable to the Director.

Construction approval

216. (1) An operator must, before commencing the construction of a production facility, submit details of the location, and proposed standards and method of construction, of the production facility for the approval of the Director.

(2) In addition to the requirements of subregulation (1), if it is proposed to make significant additions or modifications to a production facility (other than for maintenance purposes), the additions or modifications must not be commenced until the proposal has been submitted for the approval of the Director.

(3) Information on a proposal under subregulation (1) or (2) must be submitted in a manner and form acceptable to the Director.

(4) The Director may give an approval under this regulation subject to the operator complying with conditions specified by the Director.

(5) The operator must not breach, or fail to comply with, a condition imposed under subregulation (4).

(6) Unless the Director otherwise approves, a survey, map, data plot, location plan or profile submitted to the Director for the purposes of this regulation must use (and only use) Australian Geodetic Datum and Australian Height Datum.

(7) An operator must not commence construction work to which this regulation applies unless or until the Director's approval is given.

Production facilities

217. (1) A production facility must be designed, manufactured, constructed, tested, operated and maintained in accordance with relevant Australian or A.P.I. Standards or codes of practice, or to specifications and practices acceptable to the Director.

(2) The operator must maintain accurate records of each production facility under the relevant title.

Production facility isolation valves

218. A production facility must be arranged and equipped with isolation valves that permit oil or gas to be shut off in the event of a fire or other emergency.

Production facility maintenance reporting

219. (1) Reports on the following must be furnished to the Director as soon as practical after they occur—

- (a) mechanical damage or corrosion that could affect the safety or integrity of a production facility to an extent that necessitates a change in operations;
- (b) any non-routine corrosion investigation (such as instrumented pigging, acoustic emission testing and pipe examinations).

(2) A report under subregulation (1) must include, or be followed by, a report on the repairs carried out as a result of any matter identified under subregulation (1).

(3) Where a pressure test is carried out on a section of a production facility, a report on the results of the test, and any interpretation of those results, must be furnished to the Director within one month after the completion of the test.

(4) In addition to the other requirements of this regulation, the operator must within two months after the end of each year furnish the Director with a report—

- (a) summarizing the routine corrosion and other surveys carried out on a production facility during the year;

and

- (b) assessing the condition of the production facility as at the end of that year.

(5) A report under this regulation must be furnished in a manner and form acceptable to the Director.

Abandonment of wells and production facilities

220. Unless otherwise approved by the Director—

- (a) a well from which oil or gas has ceased to be economically produced must, within 18 months of the cessation of production, be plugged and abandoned in accordance with an approved programme under Part VII;

- (b) a cased and suspended well that is not brought onto production or utilized for some other purpose must, within 10 years of suspension, be plugged and abandoned in accordance with an approved programme under Part VII;

and

- (c) a production facility that is no longer utilized must, within two years of ceasing to be utilized, be removed or abandoned in a manner acceptable to the Director.

Initial production tests

221. (1) Unless otherwise approved by the Director, a newly completed or recompleted oil completion must, before being brought onto production, or within one month of being brought onto production, be subjected to a production test to determine, as far as practicable—

- (a) representative chemical analyses of fluids, as they existed in the pool;
- (b) the production capacity of the well;

and

- (c) the formation characteristics that exist at least 10m from the well.

(2) Unless otherwise approved by the Director, a newly completed or recompleted gas completion must, before being brought onto production and, in any case within three months of its completion or recompletion, be subjected to a multi-rate or other appropriate production test to determine, as far as practicable—

- (a) representative chemical analyses of fluids, as they existed in the pool;
- (b) the production capacity of the well;

and

- (c) the formation characteristics that exist at least 10m from the well.

(3) Unless valid data is in existence, where a completion is to be subjected to a major stimulation procedure (such as fracturing or acidization), a test must be carried out not more than six months before the stimulation and then, unless otherwise approved by the Director, a further test must be carried out not more than three months after the completion of the stimulation.

(4) A test under subregulation (3) must determine, as far as practicable—

- (a) any changes in the fluid flowing from the completion as a result of the stimulation;
- (b) any changes in the production capacity of the completion as a result of the stimulation;

and

- (c) any changes in formation characteristics as a result of the stimulation.

(5) Unless otherwise approved by the Director, and to such extent as the equipment installed in or on a well may permit, where a test is carried out under subregulation (1), (2) or (3), the closed in and flowing bottom hole pressures must be measured.

(6) The operator must notify the Director of a proposal to carry out a production test on a newly discovered pool under this regulation.

(7) A notification under subregulation (6) must be given as soon as a decision is made as to when the test will be carried out.

(8) A detailed report on the results of a production test must be furnished to the Director within three months after the completion of the test (although the results of a test prior to a major stimulation may be combined with the results of the test after the stimulation).

(9) A report under subregulation (8) must be submitted in a manner and form acceptable to the Director.

(10) For the purposes of this regulation, a reference to a recompleted oil or gas completion is a reference to a change to the completion that requires the approval of the Director under regulation 122.

Gas reservoir and well performance monitoring

222. (1) Unless otherwise approved by the Director—

(a) bottom hole pressure build-up surveys must be conducted on each gas completion at intervals of production not exceeding 10% of the currently estimated original recoverable reserves of the pool, in accordance with a programme approved by the Director;

(b) each producing gas completion must be tested, at intervals not exceeding four years, to determine changes in the flow characteristics of the well;

(c) full well stream gas analysis must be determined in conjunction with each test carried out under paragraph (b), and at such other times as the Director may require;

and

(d) each gas completion that is capable of production must be tested in a manner acceptable to the Director and in accordance with a time table supplied to the Director, at intervals not exceeding six months, to determine water production.

(2) A properly calibrated subsurface pressure gauge must be used to test a gas completion under subregulation (1)(a) and (b).

(3) While a gas completion is being cleaned up or tested, the amount of gas flared must be kept to a minimum in accordance with good oilfield practice.

(4) The results of a test carried out under subregulation (1)(d) must be furnished to the Director within one month after the end of the month in which the test is carried out.

(5) If a test under subregulation (1)(d) indicates the production of formation water that had not been previously identified—

- (a) a full separator test must be carried out;
 - (b) if the Director so requires, a chemical analysis of the produced water must be carried out;
- and
- (c) further separator tests must then be carried out at intervals acceptable to the Director.

Oil reservoir monitoring

223. Unless otherwise approved by the Director, bottom hole pressure build-up surveys must be conducted, where downhole equipment permits, on each well completed in a pool from which oil is being produced, at intervals not greater than—

- (a) one year;
- or
- (b) the time required to produce 10% of the currently estimated original recoverable reserves of the pool,

whichever is greater, in accordance with a programme approved by the Director.

Production measurement

224. (1) Unless otherwise approved by the Director, facilities must be in place by the commencement of production to permit the allocation or measurement of any oil, gas or water that flows from each completion.

(2) Where commingling of production from separate completions occurs prior to measurement, the production of oil, gas and water from each completion must be determined by testing at intervals not exceeding one month.

(3) The Director may exempt an operator from compliance with subregulation (2).

(4) An exemption under subregulation (3) may be granted on such conditions as the Director thinks fit.

(5) The Director may, as he or she thinks fit—

- (a) vary, add to or revoke a condition imposed under subregulation (4);
- (b) revoke an exemption under subregulation (3).

(6) Where the Director considers that inadequate production information is being obtained from a procedure being carried out for the purposes of this regulation, the Director may require that additional testing be carried out to his or her satisfaction.

(7) Unless otherwise approved by the Director, a metering device used on or in an oil or gas well, gathering system, production facility or pumping station must conform to a recognized standard.

(8) The Director may require that a meter or other device used to measure the production of oil, gas or water must be proved and certified as to its accuracy in a manner, and at a frequency, determined by the Director.

Measurement of production to determine royalties

225. (1) The Director may, for the purposes of determining the royalty payable in relation to an operation, select and seal a valve or meter installed at a well or production facility, or on a pipeline, tank or other receptacle used for the storage or transportation of oil, gas or other fluids produced from a well.

(2) Except in an emergency, a seal fixed under subregulation (1) must not be tampered with or removed without the written permission of the Director.

Concurrent production

226. (1) A completion must not be produced as a gas completion from a pool that, in the opinion of the Director, is, or could be, commercially productive of oil except in accordance with a scheme for the concurrent production of the pool approved by the Director as not being detrimental to the ultimate recovery of hydrocarbons from the pool.

(2) An application to the Director for the approval of a scheme for the purposes of subregulation (1) must be made in a manner and form approved by the Director.

Production records and reports

227. (1) Where oil, gas or water from two or more wells is commingled before it is measured, the Director may, on the application of an operator, allow records to be kept, and reports furnished to him or her, on a combined basis but, in that event, the production from each individual well must be estimated in a manner acceptable to the Director to determine, so far as may be practicable, the actual production from each well (and that estimate will represent the production of that well for the purposes of the Act and these regulations).

(2) An inspector is entitled at any reasonable time—

(a) to inspect production records that are required to be kept under these regulations;

and

(b) to copy and take extracts from those records, or to require a person to provide a copy of those records.

(3) A person must not refuse or fail to comply with a requirement made of him or her for the purposes of this regulation.

Penalty: Division 6 fine.

(4) In this regulation—

"inspector" includes an authorized officer under the Act.

Monthly production report

228. (1) An operator must, by the end of each month, furnish the Director with a monthly production report for the previous month.

(2) A monthly production report must be furnished in a manner and form acceptable to the Director.

(3) A monthly production report must contain the following information—

(a) in relation to each completion in each well that is capable of producing oil or gas, or into which it is possible to inject oil, gas, water or any other substance—

(i) the amounts of oil, gas, water or other substances produced from the completion during the month;

(ii) the amounts of oil, gas, water or other substances injected into the completion during the month;

(iii) the total time during the month when production occurred from the completion, injection was made into the completion, or the completion was shut in;

(iv) details (including dates) of each test used in the allocation of production to individual completions during the month together with the allocation calculations;

(v) the cumulative amounts of oil, gas, water or other substances produced from, or injected into, the completion;

(b) in relation to each central processing and delivery facility—

(i) the amounts of oil, gas, water or other substances received at the facility;

(ii) the amount and composition of petroleum consumed as fuel;

(iii) the amount and nature of petroleum flared;

and

(iv) the amount and nature of streams delivered from the facility;

(c) details of all routine well operations (such as cleanouts, pump changes, and stimulation treatments using oil, acid wash or other substances), including the well number, and the date on which the operation was carried out;

and

(d) such other information as the Director may reasonably require.

(4) For the purposes of subregulation (3)(a), the amount of water produced from a gas completion need not be reported.

Reservoir management plan

229. (1) Unless otherwise approved by the Director and subject to subregulation (2), a completion must not be brought into production (other than for initial production testing pursuant to regulation 221) until a reservoir management plan has been approved by the Director and the potential for enhanced recovery or retrograde condensation has been assessed in accordance with these regulations.

(2) Where, on the commencement of these regulations, a pool is already on production, a reservoir management plan for that pool must be prepared and submitted to the Director for his or her approval within one year after the commencement of these regulations.

(3) The Director may—

- (a) approve variations to a reservoir management plan;
- (b) require that a reservoir management plan be revised from time to time.

(4) A reservoir management plan, or a proposed variation of such a plan, must be submitted to the Director in a manner and form acceptable to the Director.

(5) An operator must not fail to comply with a relevant reservoir management plan.

(6) The Director may give an approval under this regulation subject to the operator complying with conditions specified by the Director.

(7) The operator must not breach, or fail to comply with, a condition imposed under subregulation (6).

Pressure below bubble point

230. (1) An oil completion must not be produced so that the sandface pressure is below the bubble point pressure unless the Director is satisfied—

(a) that the ultimate recovery of oil will not be adversely affected;

or

(b) that the inclusion of that completion in an enhanced recovery scheme is unreasonable.

(2) An application for an exemption under subregulation (1) must be submitted in a manner and form acceptable to the Director.

Prevention of waste

231. Notwithstanding any other provision of these regulations, an operator must avoid unnecessary waste throughout an operation and must, so far as is reasonably practicable, maximize the recovery from each pool under his or her control.

Evaluation of the potential of an oil pool to respond to enhanced recovery

232. (1) Subject to this regulation, before production from an oil pool is commenced, the operator must carry out an evaluation of the potential of that pool to respond to enhanced recovery processes, and of the desirability of such processes.

(2) If it is not practicable to comply with subregulation (1) before production is commenced, a programme of work to carry out such an evaluation during the course of production must be submitted to the Director for his or her approval before production is commenced.

(3) Where, on the commencement of these regulations, a pool is already on production, an evaluation of the potential of the pool to respond to enhanced recovery processes must be carried out and the results of the evaluation submitted to the Director within one year after the commencement of these regulations.

(4) The results of each evaluation carried out under this regulation must be submitted to the Director in conjunction with the reservoir management plan required under these regulations.

Restriction on amount of gas produced from a pool

233. The Minister may, if he or she thinks that it is desirable to do so, taking into account—

(a) the efficient use of gas for the production of oil;

and

(b) the demand for gas from the pool,

restrict the amount of oil or gas (or both) that may be produced from a pool.

Minister may give directions in relation to enhanced recovery

234. In order to prevent undue waste, the Minister may, by written notice to the operator—

(a) require that an enhanced recovery scheme be used in a pool, or in a part of a pool, and may, for the purposes of that scheme, require that gas, air, water or some other substance be introduced or injected into the pool;

(b) require that any gas produced from a pool be injected into an underground reservoir for storage or other purposes;

(c) require that no gas produced from a pool be disposed of in a manner, or at a rate, unacceptable to the Minister.

Approval of Minister to carry out certain schemes

235. (1) A scheme for—

(a) enhanced recovery (including gas cycling) in a pool;

(b) gathering, processing, storing or disposing of gas;

(c) gathering, processing, storing or disposing of produced water;

or

(d) disposing of any fluid or other substance to an underground formation through a well,

must not be carried out without the approval of the Minister.

(2) An application for approval must be submitted in a manner and form acceptable to the Minister.

(3) The Minister may give an approval under this regulation subject to the operator complying with conditions specified by the Minister.

(4) The operator must not breach, or fail to comply with, a condition imposed under subregulation (3).

Evaluation of potential for retrograde condensation

236. (1) Subject to this regulation, before production from a gas pool is commenced, the operator must carry out well sampling and evaluate the possibility of retrograde condensation occurring in the pool.

(2) If it is not practicable to comply with subregulation (1) before production is commenced, a programme of work to carry out such an evaluation during the course of production must be submitted to the Director for his or her approval before production is commenced.

(3) Where, on the commencement of these regulations, a pool is already on production, an evaluation of the potential for, or the documentation of the historical lack of evidence of, retrograde condensation must be carried out and submitted to the Director within one year after the commencement of these regulations.

(4) Where, as a result of an evaluation under this regulation, there appears to be the possibility of retrograde condensation occurring in a pool, a full pressure-volume-temperature study must be carried out and the results of that study submitted to the Director in conjunction with the reservoir management plan under these regulations.

Report on an approved scheme

237. Where approval has been given to an operator—

- (a) to carry out enhanced recovery;
 - (b) to produce from a reservoir susceptible to retrograde condensation;
 - (c) to produce from an oil reservoir below the bubble point;
- or
- (d) to carry out concurrent production,

the operator must, in a manner and form acceptable to the Director, furnish the Director with reports on the progress of the operation at intervals of not less than six months.

Reservoir data

238. (1) Whenever reservoir measurements are carried out, they must be reported to the Director as soon as practicable thereafter.

(2) The Director may from time to time require that an operator carry out such reservoir measurements as the Director may consider necessary to ensure adequate reservoir control, and that the results of those measurements be reported to him or her as soon as practicable thereafter.

(3) All available reservoir and field data reports, the results of allied laboratory analyses, and the studies and interpretation of any such data, must be furnished to the Director as soon as practicable after they have been prepared, completed or obtained.

Prevention of cross flow

239. If a completion is shut-in for an extended period (other than in an emergency), the operator must ensure that the completion is left in a condition that will prevent deleterious cross flow between zones.

Commingling

240. (1) The commingling of production from separate pools within a well must not occur without the written approval of the Director.

(2) An approval under subregulation (1) may be granted on such conditions as the Director thinks fit.

(3) The Director may, as he or she thinks appropriate on the basis of good oilfield practice, or to enhance the conservation of petroleum—

(a) vary, add to or revoke a condition imposed under subregulation (2);

(b) revoke an approval under subregulation (1).

(4) Unless otherwise approved by the Director, where commingling of production from separate pools within a well is permitted—

(a) the rate of production from individual pools through the well must, while the well is on production, be determined at intervals not exceeding one year;

and

(b) the presence and magnitude of cross flow between the individual pools through the well must be determined as soon as practicable after the commencement of each extended shut in period.

(5) An application for an approval under this regulation must be submitted in a manner and form acceptable to the Director.

Segregation of zones

241. (1) An operator must, in relation to each multiple completion well, demonstrate that segregation between the completions has been achieved and maintained—

(a) after the initial well completion, after any change of subsurface equipment and after any other operation that may disturb, or exert abnormal differential pressures on, subsurface equipment;

and

(b) additionally, at least once in each year, or at such other intervals as the Director may require or approve.

(2) An operator must, within one month after completing a test carried out to meet the requirements of subregulation (1), furnish the Director with a report on the test in which he or she includes all relevant data obtained from the test, and an analysis and interpretation of the results of the test to prove or confirm segregation.

(3) If a test carried out to meet the requirements of this regulation, or the production characteristics of a well, indicate that segregation between the completions is ineffective, the Director must be immediately informed.

(4) All reasonable steps must be promptly taken to re-establish segregation and, if those steps are not successful, the Director may order that one or more of the completions be sealed off.

(5) If an operator fails to demonstrate to the Director in accordance with this regulation that segregation between completions has been achieved, the Director may require that the well be shut-in or produced in a manner specified by the Director.

(6) An operator must give the Director at least three days notice of an intention to carry out a test for the purposes of this regulation.

Waste or contamination

242. (1) Where, in the opinion of the Minister, there is a reasonable possibility that—

(a) oil, gas or water is being wasted;

or

(b) oil, gas or water is being contaminated,

the Minister may require the operator to carry out tests specified by the Minister.

(2) An operator must carry out the tests required under subregulation (1) within a reasonable time and if, as a result of those tests, it is established that waste or contamination is occurring, the operator must take such steps as may be necessary to remedy or prevent the waste or contamination.

(3) If steps must be taken under subregulation (2), the Minister may then require the operator to carry out further tests to determine the effectiveness of those steps in remedying or preventing the waste or contamination.

(4) The results of any test carried out under this regulation must be furnished to the Director as soon as practicable after they are obtained by the operator.

Waste liquid disposal

243. All formation water, and other waste fluids produced from a well, must be disposed of in a manner acceptable to the Director, and in no case may the disposal of formation water, drilling fluid, waste petroleum or refuse from tanks or wells be allowed to constitute a risk to public health or safety, or to contaminate water or land not specifically designated for waste disposal.

PART IX PIPELINES

Compliance with standards

245. (1) Unless otherwise approved by the Minister—

(a) the design, manufacture, construction, operation, maintenance and testing of pipelines wholly constructed after the commencement of these regulations;

and

(b) the operation, maintenance and testing of pipelines wholly or partially constructed before the commencement of these regulations,

must be carried out in accordance with the relevant requirements of Australian Standard 2885 "Gas and Liquid Petroleum Pipelines".

(2) To such extent as Australian Standard 2885 does not apply, the design, manufacture, construction, operation, maintenance and testing of a pipeline must be carried out to the satisfaction of the Minister.

Commissioning of pipeline

246. (1) A pipeline must not be commissioned until the Director has approved pipeline safety, security, commissioning, operating and emergency procedures.

(2) A pipeline must not be operated until the Director has consented to the commencement of operations.

Construction and operation

247. (1) The person in charge of the construction of a pipeline must, by the end of each month, furnish the Director with a report on the construction of the pipeline during the previous month.

(2) The licensee of a pipeline must, within one month after the end of each quarter, furnish the Director with a report on the operation of the pipeline during that previous quarter.

(3) A report under this regulation must be furnished in a manner and form acceptable to the Director.

(4) The Director may, after the receipt of a report under this regulation, require the person who furnished the report to provide further or more detailed information on the particular pipeline (and that person must supply that information to the Director within a reasonable time).

Crossing existing pipelines and buried cables

248. (1) A pipeline must not be constructed over or under an existing pipeline or buried cable unless the owner of the existing pipeline or buried cable is given at least 72 hours notice before construction commences.

(2) Unless the Director otherwise approves, where a pipeline is constructed over or under an existing pipeline or buried cable—

(a) only manual excavation may occur within 2m of the existing pipeline or buried cable;

and

(b) adequate cathodic protection facilities must be installed to ensure that the existing structure is not adversely affected.

Tests

249. (1) The licensee of a pipeline must submit an inspection and testing programme for the approval of the Director.

(2) Where a test on materials or any method of construction must be carried out under this Part—

(a) the results of the test must be recorded and certified in an endorsed test document within the meaning of the By-laws of the National Association of Testing Authorities, Australia;

or

(b) the test must be carried out in accordance with specifications approved by the Director.

(3) Where practical, at least seven days notice must be given to the Director of a proposed hydrostatic or flow efficiency test.

(4) A copy of a report of every pressure test, including all test results and an interpretation of those results, must be supplied to the Director within 14 days after the completion of the test.

Signs

250. (1) Signs or markers, in accordance with the requirements of Australian Standard 2885, must be erected and maintained—

(a) at each abrupt change of direction of a pipeline;

(b) at each property boundary;

(c) at each point where a pipeline crosses the boundary of a highway, road or railway;

(d) at each side of a river or stream crossing;

(e) where a pipeline runs parallel to an established road or railway, and within or immediately adjacent to—

(i) the road or railway;

(ii) a road reserve;

(iii) a right of way, or any form of easement, that exists for the purposes of the road or railway;

or

(iv) any other land set aside for the purposes of the road or railway,

at intervals not exceeding 500m;

(f) at each point at which a pipeline crosses a major service (including telecommunication or power cables, pipelines, water lines, sewers and buried storm water drains);

and

(g) in any event, at intervals not exceeding two kilometres.

(2) The Director may, in a special case, approve variations to the requirements of subregulation (1).

(3) The Director may give an approval under subregulation (2) on such conditions as the Director thinks fit.

(4) Where aerial markers are installed along a pipeline route, the signs required under subregulation (1) may be incorporated in those markers.

(5) A pipeline must not be pressure-tested with gas or air until the signs required under this regulation have been erected.

Odorization of gas

251. (1) Unless otherwise authorized by the Director, a pipeline licensee must ensure that any natural gas transferred out of the licensee's control contains an odorant that is easily detectable.

(2) At the normal operating concentration, the odorant, and the products of combustion of the odorant, must be—

(a) non-toxic and non-irritant to human beings;

(b) non-corrosive to steel, iron, brass and bronze;

and

(c) non-deleterious to rubber and leather.

Corrosion records

252. Corrosion, and corrosion control records, of a pipeline must be kept in accordance with good pipeline operating practice and details of those records must be furnished to the Director as the Director may require.

Escape of substances from pipelines

253. (1) If a substance escapes from a pipeline, the person in charge of the pipeline must take such steps as are necessary—

(a) to protect human life;

(b) to minimize the loss of the substance from the pipeline;

and

(c) to minimize the pollution caused to surrounding lands and waters by the substance.

(2) The pipeline licensee must, as soon as possible, report the escape to the Director.

(3) The pipeline licensee must, as soon as practicable after the escape has ceased, submit a written report to the Director containing, with reasonable particularity, the following information:

(a) the time and place of the escape;

(b) the approximate quantity of oil, gas or other substance lost;

(c) the damage that resulted from the escape, and any ignition of the escaping substance;

(d) the conditions that caused or contributed to the escape or ignition;

(e) the repairs carried out, or proposed to be carried out, on the pipeline;

(f) the general circumstances surrounding the escape of the substance and the control of that escape;

and

(g) the measures taken, or proposed to be taken, to clean up and rehabilitate any area affected by the escape of the substance.

78.

**PART X
MISCELLANEOUS**

Prescribed fees and amounts

254. The fees and amounts payable for the purposes of the Act are set out in the schedule.

SCHEDULE
Fees and amounts
(reg. 254)

\$

Fees — various

1. On application for the grant of a petroleum exploration licence or petroleum production licence (s. 7(2))	2 240.00
2. On application for the renewal of a petroleum production licence (s. 32(2)(c))	1 120.00
3. Annual fee for a petroleum production licence (per square kilometre of the area comprised in the licence) (s. 34)	150.00
4. On application for the Minister's approval to deal with a licence or an interest in a licence, etc. (s. 42(6))	1 120.00
5. Annual fee for a pipeline licence (per kilometre of the pipeline or proposed pipeline) (s. 80o)	89.60

Scale of licence fees — petroleum exploration licence (s. 18c)

6. Annual fee for a petroleum exploration licence (per square kilometre of the area comprised in the licence)—	
(a) in respect of the initial term of the licence	0.27
(b) in respect of the first renewal of the licence	0.40
(c) in respect of the second renewal of the licence	0.54
(d) in respect of any subsequent renewal of the licence	0.67

Bond

7. Bond to be lodged before grant of a petroleum exploration licence or petroleum production licence (s. 13(1))	15 000.00
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APPENDIX 1**LEGISLATIVE HISTORY**

Regulation 4:	varied by 262, 1991, reg. 3
Regulation 7:	revoked by 210, 1996, reg. 3
Regulation 13(2):	varied by 111, 1998, reg. 3(a)
Regulation 13(4):	varied by 111, 1998, reg. 3(b)
Regulation 17(1)(a):	revoked by 210, 1996, reg. 4(a)
Regulation 17(1)(b)(vii):	revoked by 210, 1996, reg. 4(b)
Regulation 17(1):	varied by 210, 1996, reg. 4(c)
Regulation 17(2):	substituted by 210, 1996, reg. 4(d)
Regulation 17(3):	revoked by 210, 1996, reg. 4(d)
Regulation 17(5) - (8):	revoked by 210, 1996, reg. 4(e)
Regulation 18:	revoked by 210, 1996, reg. 5
Regulations 29 and 30:	revoked by 210, 1996, reg. 6
Regulations 33 and 34:	revoked by 210, 1996, reg. 7
Regulation 35(1):	revoked by 210, 1996, reg. 8
Regulations 38 - 40:	revoked by 210, 1996, reg. 9
Regulations 43 - 46:	revoked by 210, 1996, reg. 10
Regulation 49:	substituted by 210, 1996, reg. 11
Regulation 53:	revoked by 210, 1996, reg. 12
Regulation 57:	revoked by 210, 1996, reg. 13
Regulations 59 - 63:	revoked by 210, 1996, reg. 14
Regulation 64(2):	revoked by 210, 1996, reg. 15
Regulation 65:	substituted by 210, 1996, reg. 16
Regulations 66 - 69:	revoked by 210, 1996, reg. 17
Regulation 71:	revoked by 210, 1996, reg. 18
Regulation 73(2):	revoked by 210, 1996, reg. 19
Regulation 76:	revoked by 210, 1996, reg. 20
Regulation 78(1):	revoked by 210, 1996, reg. 21
Regulation 80:	revoked by 210, 1996, reg. 22
Regulation 149(2) and (3):	revoked by 210, 1996, reg. 23
Regulation 155(2) and (3):	revoked by 210, 1996, reg. 24(a)
Regulation 155(7) and (8):	revoked by 210, 1996, reg. 24(b)
Regulation 156(1) - (3):	revoked by 210, 1996, reg. 25(a)
Regulation 156(8) - (12):	revoked by 210, 1996, reg. 25(b)
Regulations 157 - 160:	revoked by 210, 1996, reg. 26
Regulations 161 - 166:	substituted by 210, 1996, reg. 27
Regulation 167(2) - (4):	revoked by 210, 1996, reg. 28(a)
Regulation 167(8):	revoked by 210, 1996, reg. 28(b)
Regulation 167(13):	revoked by 210, 1996, reg. 28(c)
Regulations 168 - 171:	revoked by 210, 1996, reg. 29
Regulations 173 - 176:	revoked by 210, 1996, reg. 30
	Division IV of Part VII comprising ss. 177 - 193 and heading revoked by 210, 1996, reg. 30
Regulation 198:	varied by 210, 1996, reg. 31
Regulations 200 - 206:	revoked by 210, 1996, reg. 32
Regulations 211 and 212:	revoked by 210, 1996, reg. 33

PART X comprising reg. 254 and heading inserted by 262, 1991,
reg. 4

81.

Regulation 244:
Schedule:

revoked by 11, 1996, reg. 3
inserted by 262, 1991, reg. 4; substituted by 111, 1998, reg. 4

APPENDIX 2**DIVISIONAL PENALTIES AND EXPIATION FEES**

At the date of publication of this reprint divisional penalties and expiation fees are, as provided by section 28A of the *Acts Interpretation Act 1915*, as follows:

Division	Maximum imprisonment	Maximum fine	Expiation fee
1	15 years	\$60 000	—
2	10 years	\$40 000	—
3	7 years	\$30 000	—
4	4 years	\$15 000	—
5	2 years	\$8 000	—
6	1 year	\$4 000	\$300
7	6 months	\$2 000	\$200
8	3 months	\$1 000	\$150
9	—	\$500	\$100
10	—	\$200	\$75
11	—	\$100	\$50
12	—	\$50	\$25

Note: This appendix is provided for convenience of reference only.