



**Northern  
Territory  
Government**

Department of Business,  
Industry and  
Resource Development

# **Schedule of Onshore Petroleum Exploration and Production Requirements 1993**

**Northern Territory Department of Business,  
Industry and Resource Development**

**GPO Box 300, Darwin Northern Territory 0801**

**Phone (08) 89995428 - Fax (08) 89995530**

Please note that this version of the Onshore Schedule has been converted from Adobe Framemaker format to MS Word 97 format and as such may not look the same as the existing printed version. The page numbers have been changed in this version to reflect this conversion. NO Changes to the content have been made.

Also the Schedule is undergoing review and there will be an introduction of Occupational Health and Safety Regulations under the NT Petroleum Act by about June 2001. Other Regulations will be following. Certain Clauses in this Schedule will be deleted when the new Regulations come into force.

**YOU ARE ENCOURAGED TO CONTACT THE DEPARTMENT TO ENSURE YOU  
HAVE THE LATEST AMENDMENTS.**



## CONTENTS:

This Schedule is divided into eight Parts as follows:-

### **PART I - INTRODUCTORY**

|  | <b>Clause</b> | <b>Page</b> |
|--|---------------|-------------|
| Application of Schedule  | 101           | 6           |
| Exemptions   | 102           | 6           |
| Verifications  | 103           | 6           |
| Definitions  | 104           | 17          |
| Codes, Standards and Specifications                                  | 105           | 21          |
| Personnel Competence   | 106           | 22          |
| Tests  | 107           | 22          |
| General Duties and Responsibilities of<br>of Operators & Contractors | 108           | 22          |
| Protection of Environment  | 109           | 23          |
| Inspectors   | 110           | 23          |
| Interference with Public Utilities                                   | 111           | 24          |
| Containment of Petroleum and Waste Fluids                            | 112           | 24          |
| Borrow Pits  | 113           | 25          |

## **PART II - SAFETY**

### **Division 1 General Requirements**

|  |     |    |
|--|-----|----|
| General Duty of Care                   | 201 | 26 |
| Safety Manual                          | 202 | 26 |
| Emergency Response Manual              | 203 | 26 |
| Updating of Manuals                    | 204 | 27 |
| Availability of Manuals and Directions | 205 | 27 |
| Instruction of Personnel               | 206 | 27 |
| Admittance to an Operational Site      | 207 | 27 |
| Person-in-Charge                       | 208 | 28 |
| Communication                          | 209 | 28 |
| Command of English                     | 210 | 28 |
| Protective Equipment                   | 211 | 28 |
| Noise Levels                           | 212 | 28 |
| Radio-active Substances                | 213 | 28 |
| Oil Spills                             | 214 | 29 |
| Notices                                | 215 | 29 |
| Emergency Drill Exercises              | 216 | 29 |
| Fire Fighting Equipment                | 217 | 29 |
| Medical                                | 218 | 30 |
| Accidents                              | 219 | 30 |
| Drugs and Intoxicants                  | 220 | 31 |
| Contaminated Atmosphere                | 221 | 31 |
| Ropes and Slings                       | 222 | 31 |
| Safe Use of Equipment                  | 223 | 32 |
| Machinery Maintenance                  | 224 | 33 |
| Repair of Plant                        | 225 | 33 |

|  |     |    |
|--|-----|----|
| Mobile Equipment                           | 226 | 33 |
| Cranes                                     | 227 | 34 |
| Waterborne Operations                      | 228 | 34 |
| Debris Constituting a Fire Hazard          | 229 | 34 |
| Flares and Flare Lines                     | 230 | 34 |
| Temporary Well Site Production Equipment   | 231 | 35 |
| Siting of Production Equipment             | 232 | 35 |
| Venting or Flammable Vapours               | 233 | 35 |
| Smoking, Naked Lights, Welding and Cutting | 234 | 36 |
| Internal Combustion Engines                | 235 | 36 |
| Fuel Tanks                                 | 236 | 38 |
| Lighting                                   | 237 | 38 |
| Swabbing at Night                          | 238 | 38 |
| Temporary Cessation of any Operation       | 239 | 38 |
| General Safety Precautions                 | 240 | 38 |
| Working in Elevated Places                 | 241 | 39 |

## **Division 2 Safe Drilling Practices**

|   |     |    |
|---|-----|----|
| Raising and Lowering Masts and Derricks | 242 | 41 |
| Platforms and Handrails                 | 243 | 41 |
| Drawworks Controls                      | 244 | 41 |
| Making Up and Breaking Joints           | 245 | 41 |
| Protection of People at Work            | 246 | 41 |
| Ancillary Escape                        | 247 | 42 |
| Stabbing Boards                         | 248 | 42 |
| Safety Belts                            | 249 | 43 |
| Riding Hoisting Equipment               | 250 | 43 |

|                                     |     |    |
|-------------------------------------|-----|----|
| Weight Indicator                    | 251 | 44 |
| Brakes                              | 252 | 44 |
| Rotary Table                        | 253 | 44 |
| Racked Pipes                        | 254 | 44 |
| Mud Savers                          | 255 | 45 |
| Rig Safety                          | 256 | 45 |
| Mast and Derrick Platforms          | 257 | 46 |
| Inside Derrick Platforms            | 258 | 46 |
| Ladders and Stairways               | 259 | 46 |
| Hoisting and Other Wire Ropes       | 260 | 47 |
| Travelling Blocks                   | 261 | 48 |
| Catheads                            | 262 | 49 |
| Guards                              | 263 | 50 |
| Pressure Hoses                      | 264 | 50 |
| Crown Blocks                        | 265 | 51 |
| Counter-balance                     | 266 | 51 |
| Pipe Racks and Pipe Handling        | 267 | 51 |
| Pipe Hooks                          | 268 | 52 |
| Back-up Posts and Tong Safety Lines | 269 | 52 |
| Pressure Relief Valves              | 270 | 52 |

### **Division 3 Air and Gas Drilling**

|                       |     |    |
|-----------------------|-----|----|
| General               | 271 | 54 |
| Warning Notices       | 272 | 54 |
| Delivery Lines        | 273 | 54 |
| Vehicles              | 274 | 55 |
| Fire Precautions      | 275 | 55 |
| Siting of Compressors | 276 | 55 |

|                                   |     |    |
|-----------------------------------|-----|----|
| High Pressure Lines and Manifolds | 277 | 55 |
| Blooney Line                      | 278 | 56 |
| Substructure Ventilation          | 279 | 56 |
| Supply Line Valves                | 280 | 56 |
| Drillstring Float                 | 281 | 56 |
| Mud Stocks                        | 282 | 57 |
| Gas Detection Equipment           | 283 | 57 |

#### **Division 4 Reporting**

|   |     |    |
|---|-----|----|
| Reporting of Death and Serious Injury                           | 284 | 58 |
| Written Records of Death and Injury                             | 285 | 58 |
| Reporting Serious Damage  | 286 | 58 |
| Reporting a Potentially Hazardous Event                         | 287 | 59 |
| Reporting Damage Less than \$20,000                             | 288 | 59 |
| Reporting Escape or Ignition of Petroleum<br>and Other Material | 289 | 60 |
| Reporting of Emergencies  | 290 | 60 |
| Reporting Radiation Monitoring                                  | 291 | 60 |

### **PART III - ELECTRICAL INSTALLATIONS**

|   |     |    |
|---|-----|----|
| Wiring Rules                                | 301 | 61 |
| Power Supply                                | 302 | 61 |
| Protection of Circuits                      | 303 | 61 |
| Hazardous Locations                         | 304 | 62 |
| Electrical Generators, Alternators & Motors | 305 | 62 |
| Substations and Distribution Centers        | 306 | 63 |
| Electric Shock                              | 307 | 63 |
| Portable Electrical Systems Equipment       | 308 | 63 |
| Earthing and Lightning Protection           | 309 | 64 |
| Control of Static Electricity               | 310 | 64 |
| Maintenance, Repairs and Alterations        | 311 | 65 |
| Remote Motors                               | 312 | 65 |
| Control Equipment                           | 313 | 65 |
| Work On High Voltage Apparatus              | 314 | 65 |
| Inspection of Electrical Equipment          | 315 | 66 |



#### **PART IV - EXPLOSIVES**

|  |     |    |
|--|-----|----|
| Application of the Dangerous Goods Act             | 401 | 67 |
| Safety of Personnel                                | 402 | 67 |
| Operations During Darkness                         | 403 | 67 |
| Shut Down of Electrical Generating Plant           | 404 | 67 |
| Earth-return Electrical Systems                    | 405 | 67 |
| Adverse Weather Conditions                         | 406 | 68 |
| Safety on the Rig Floor                            | 407 | 68 |
| Earthing   | 408 | 68 |
| Use of Secure Containers                           | 409 | 68 |
| Surplus Explosives                                 | 410 | 69 |
| Short-circuiting of Detonators and<br>Firing Cable | 411 | 69 |
| Portable Radio Transmitters                        | 412 | 69 |

## **PART V - DRILLING AND WORKOVER**

### **Division 1 General Requirements**

|  |     |    |
|--|-----|----|
| Approval to Drill                                  | 501 | 70 |
| Approval of Drilling Equipment                     | 502 | 71 |
| Equipment to Conform to Certain Standards          | 503 | 71 |
| Location Survey                                    | 504 | 72 |
| Prohibited Drilling Areas                          | 505 | 72 |
| Casing   | 506 | 72 |
| Cementing of Casing                                | 507 | 74 |
| Blow out Prevention Control                        | 508 | 75 |
| Pressure Testing Blow-out Prevention Equipment     | 509 | 77 |
| Mud Monitoring System                              | 510 | 77 |
| Penetration Rate and Formation Pressure Monitoring | 511 | 78 |
| Accumulators                                       | 512 | 78 |
| Blow-out Prevention Drills                         | 513 | 79 |
| Formation Integrity Testing                        | 514 | 79 |
| Drilling Fluid                                     | 515 | 80 |
| Deviation Surveys                                  | 516 | 80 |
| Conversion of Wells into Water Wells               | 517 | 80 |
| Oil or Gas Lost or Used During Repair Operations   | 518 | 80 |
| Evaluation of an Occurrence of Petroleum           | 519 | 81 |
| Core and Cutting Samples                           | 520 | 81 |
| Reports on Analysis of Core & Cuttings             | 521 | 81 |
| Age Dating of Samples                              | 522 | 82 |
| Fluid Samples                                      | 523 | 82 |

|                                       |     |    |
|---------------------------------------|-----|----|
| Well Evaluation Logs                  | 524 | 82 |
| Protection of Aquifers                | 525 | 83 |
| Production of Drill Stem Tests        | 526 | 83 |
| Flammable Vapours                     | 527 | 85 |
| Approval to Abandon or Suspend a Well | 528 | 85 |
| Abandonment of a Well                 | 529 | 86 |
| Well Completion                       | 530 | 88 |
| Disposal of Produced Oil and Gas      | 531 | 88 |
| Restoration of Site                   | 532 | 88 |

### **Division 2 Reporting and Data Submission**

|   |     |    |
|---|-----|----|
| Discovery of Petroleum and Estimate of Recoverable and In-Place Petroleum | 533 | 90 |
| Daily Report of Drilling or Workover Operations                           | 534 | 90 |
| Report on Modification, Abandonment or Suspension of a Well               | 535 | 91 |
| Well Completion Report  | 536 | 91 |

### **Division 3 Special Services**

|                  |     |    |
|------------------|-----|----|
| Special Services | 537 | 93 |
| Equipment        | 538 | 93 |
| Operations       | 539 | 93 |
| Swabbing         | 540 | 94 |

## **PART VI - PETROLEUM PRODUCTION**

### **Division 1 General Requirements**

|   |     |     |
|---|-----|-----|
| Approval for Production Equipment and Safety Systems          | 601 | 95  |
| Production Facilities   | 602 | 95  |
| Equipment to Comply with Certain Standards                    | 603 | 95  |
| Production Isolation Valves                                   | 604 | 96  |
| Initial Production Tests                                      | 605 | 96  |
| Reservoir Management Plan                                     | 606 | 97  |
| Evaluation of Potential for Retrograde Condensation           | 607 | 97  |
| Rate of Recovery of Petroleum                                 | 608 | 98  |
| Production Tests on Producing Wells                           | 609 | 98  |
| Gas Reservoir and Well Performance Monitoring                 | 610 | 98  |
| Oil Reservoir Pressure Buildup Surveys                        | 611 | 99  |
| Production and Measurement of Produced Petroleum and Water    | 612 | 99  |
| Measurement of Production to Determine Royalties              | 613 | 100 |
| Pressure Below Bubble Point                                   | 614 | 100 |
| Surface Connections   | 615 | 100 |
| Segregation of Zones  | 616 | 100 |
| Minister May Give Directions in Relation to Enhanced Recovery | 617 | 101 |
| Waste or Contamination  | 618 | 101 |
| Approval to Vent or Flare                                     | 619 | 102 |
| Monitors and Control Mechanisms                               | 620 | 102 |
| Safety Devices  | 621 | 102 |

|                               |     |     |
|-------------------------------|-----|-----|
| Workover of Wells             | 622 | 103 |
| Wireline Operations in Wells  | 623 | 103 |
| Pressure Vessel Inspection    | 624 | 103 |
| Protection of Completed Wells | 625 | 103 |
| Plugging of Wells             | 626 | 104 |
| Removal of Facilities         | 627 | 104 |
| Restoration of Lands          | 628 | 104 |

### **Division 2 Reporting and Data Submission**

|  |     |     |
|--|-----|-----|
| Program of Work  | 629 | 105 |
| Estimate of Recoverable and In-Place<br>Petroleum            | 630 | 105 |
| Monthly Production Report                                    | 631 | 105 |
| Production Facility Maintenance Reporting                    | 632 | 106 |
| Records of Periodic Inspections                              | 633 | 107 |
| Production Records and Reports                               | 634 | 107 |
| Reports on Wireline Surveys and Sub-surface<br>Safety Valves | 635 | 107 |

## **PART VII - GEOPHYSICAL AND GEOLOGICAL SURVEYING**

### **Division 1 - General Requirements**

|   |     |     |
|---|-----|-----|
| Application   | 701 | 109 |
| Person-in-charge  | 702 | 109 |
| Approval to Carry Out Geological and Geophysical Survey | 703 | 109 |
| Protection of the Environment                           | 704 | 110 |
| Explosives  | 705 | 110 |
| Operations on Roads and in Inhabited Areas              | 706 | 110 |
| Marking Seismic Lines                                   | 707 | 111 |
| Shot Holes and Energy Sources                           | 708 | 111 |
| Shot Hole Temporary Plug                                | 709 | 112 |
| Permanent Shot Hole Plugs                               | 710 | 112 |
| Uncontrolled Flow of Water                              | 711 | 112 |

### **Division 2 - Reporting**

|   |     |     |
|---|-----|-----|
| Weekly Reports                                      | 712 | 113 |
| Basic Data Retention and Submission                 | 713 | 113 |
| Final Reports on Geological and Geophysical Surveys | 714 | 115 |

**PART VIII - REPORTING REQUIREMENTS FOR EXPLORATION TITLES**

Periodic Reports

801

116

Australian and other Standards or Codes referenced in this Schedule



**PART I**  
**INTRODUCTORY**

**101      Application to Direction**

Notwithstanding anything to the contrary in this Schedule, the direction implementing this Schedule applies only to or in relation to acts, omissions, matters, circumstances or things touching, concerning, arising out of or connected with the exploration or exploitation of the soil and subsoil for petroleum.

**102      Exemptions**

(1) Where the Director is satisfied -

- (a) that compliance with a requirement of this Schedule in a particular case is unnecessary, impracticable or undesirable; and
- (b) that alternative action that is at least as safe will be taken and that in the particular circumstances it is appropriate, the Director may exempt any person or class of persons from the duty to comply with the particular requirement subject to such conditions as the Director thinks applicable.

(2) 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 and safety it is necessary to do so,

the Director may revoke the exemption (either as it applies to a particular person, or generally) in writing at any time.

**103      Verification**

The construction, alteration or reconstruction of drilling and production equipment, safety systems and emergency facilities shall not be undertaken without approval and, where required by the Director, verification by a Verifying Body.

**Definitions:**

In this Schedule, unless inconsistent with the context or subject matter:

"**the Act**" means the Northern Territory *Petroleum Act, 1984*, as amended, or the *Petroleum (Prospecting and Mining) Act* as the context requires:

"**ANSI**" means the American National Standards Institute:

"**API**" means the American Petroleum Institute:

"**approval**" or "**approved**" means the approval of or approved by the Director:

"**ASEG-GDF**" means Australian Society of Exploration Geophysicists General Data Format:

"**ASME**" means the American Society of Mechanical Engineers:

"**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 published by the Standards Association of Australia:

"**basic data**" includes all data acquired in the field or laboratory including physical and chemical measurements conducted as part of the analysis of fluid or core and cutting samples:

"**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 necessary sub-surface equipment independent of other flowpaths in the well:

"**conductor casing string**" means a pipe installed to cover unconsolidated surface formations, and which may provide a means for return of drilling fluid from the well before the surface casing is installed:

"**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 standard conditions of 101.325 kilopascals absolute pressure (14.7 psia) and 15°C (60°F) temperature:

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

"**development well**" means a well that is drilled within the expected limits or boundaries of a petroleum accumulation and that is drilled 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 person from time to time holding the position of Director of Energy of the Northern Territory Department of Business, Industry and Resource Development:

"**drilling rig/installation**" means the equipment used in connection with rotary or other drilling, including a workover or well service rig, but does not include a seismic shot hole drilling rig:

"**drilling operations**" means the making of wells by means of rotary or other drilling:

"**enhanced recovery**" means increasing the recovery of petroleum from a reservoir so that it produces a quantity greater than the quantity that would have been achieved by the action of natural reservoir energy on the 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 new field wildcat 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 atmosphere**" means an atmosphere which would explode and burn if a source of ignition was introduced into that atmosphere:

"**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:

"**fluid**", in relation to production, means petroleum or a mixture of petroleum and water:

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

"**geophysical survey/surveying**" means geophysical investigation by any generally recognized method including seismic, gravimetric, magnetic, electrical, geochemical, or radioactive methods, but excludes operations conducted wholly or partly within a well:

"**good oilfield practice**" means all those practices and procedures 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:

"**intermediate casing string**" means a pipe installed in a well after the surface casing string to seal off unconsolidated formations, lost circulation zones, abnormal pressure zones and/or hydrocarbon zones:

"**installation**" means a drilling or a production installation or a related construction site or camp site:

"**liner string**" means a pipe which is an intermediate or production casing string but does not extend to the wellhead:

"**notified**" means the sending of a written notice to the Director, unless otherwise specified:

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

"**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:

"**Operator**" means the representative of the title holders appointed in accordance with Clause 108:

"**person-in-charge**" a person appointed by an Operator to provide on site management and control of any specified operation:

"**plant**" includes -

- (a) any machinery, equipment, vehicle, implement, tool or article used in, or in connection with, an operation;

(b) any tank, vessel, pit or dump used in, or in connection with, an operation;

(c) any pipeline, but excludes a pipeline under the Energy Pipelines Act.

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

**"production casing string"** means a pipe installed in a well to isolate one or more zones for testing or production purposes:

**"production equipment"** means equipment for flow regulation or measurement, for sampling or storage of fluid from a well, or for separation of fluid components:

**"production facility/installation"** 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:

**"production test"** means an operation (other than formation fluid sampling into a container positioned by a wireline operation) carried out on a well to recover reservoir fluids for or in connection with estimating well productivity:

**"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, temperature, fluid characteristics and movement of fluids or fluid interfaces within a reservoir:

**"reservoir pressure"** means the static or stabilized pressure that exists, or that is inferred 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 sub surface 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 for firing an explosive charge:

**"title"** means an exploration permit, production licence, retention licence, or an access authority granted under the Petroleum Act or a lease granted under the Petroleum (Prospecting and Mining) Act (repealed):

**"Verifying Body"** means an approved body qualified to -

- (a) verify the design, construction and installation of petroleum facilities;
- (b) verify the design, construction and operating condition of cranes and pressure vessels; or
- (c) carry out such verification as the Director may require.

**"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 of a well:

**"workover"** means any operation carried out on a well in order to improve productivity or remedy a down hole mechanical defect, including but not limited to recovering tubing, reperforating, recompleting, stimulating, or in any way altering the down hole configuration of the well.

## **105 Codes, Standards and Specifications**

(1) Reference in this Schedule to a code, standard or specification, unless inconsistent with the context or subject matter, is a reference to the latest issued edition of that code, standard or specification.

(2) Where a document, standard, rule, code or specification adopted by this Schedule, whether in part or in whole, refers to another document, standard, rule, code or specification that document, standard, rule, code or specification shall be deemed to be incorporated with, and form part of, the document, standard, rule, code or specification.

(3) Where a document, standard, rule, code or specification adopted by this Schedule is inconsistent with this Schedule, this Schedule shall prevail, unless otherwise specified, in writing, by the Director.

**106 Personnel Competence**

- (1) A person carrying out an operation shall have any certificate of competence, authorization or qualification required by law.
- (2) The Director may at any time require that evidence be furnished to enable him to determine whether a person is competent to be engaged in a particular operation.

**107 Tests**

Except where otherwise specified in this Schedule any test required under this Schedule shall be carried out in such a manner as will enable the results to be recorded and certified -

- (a) in an endorsed document within the meaning of the By-laws of the National Association of Testing Authorities, Australia; or
- (b) where the test is not a test in respect of which an endorsed document of the kind referred to in paragraph (a) can be given, to the satisfaction of the Director; or
- (c) where the test is a test in respect of which an endorsed document of the kind referred to in paragraph (a) can be given but for practical reasons acceptable to the Director the requirement for such endorsement has been waived, to the satisfaction of the Director.

**108 General Duties and Responsibilities of Operators and Contractors**

- (1) Operations shall be carried out under the overall management and control of an Operator, appointed in writing by the title holders. No appointment or replacement of an Operator shall be effective until the Director is notified.
- (2) Subject to this Schedule -
  - (a) it is the duty of an Operator and any contractor to ensure contractors' compliance with these requirements; and
  - (b) in the event of a contravention of, or failure to comply with a provision of these requirements, the Operator and contractor are each guilty of an offence.
- (3) In addition to the operation of Sub-Clause (1), if a requirement provides that a particular person shall perform or discharge a function or duty under the requirement, that person is guilty of an offence if the person contravenes, or fails to comply with the requirement.
- (4) Subject to any express provision in a particular requirement -

(a) the Operator shall provide, install and maintain such plant as is necessary to enable compliance with this Schedule; and

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

(5) It is a defence to a charge for an offence against this Schedule for the accused to prove -

(a) that the offence relates to a matter which the accused did not know and could not reasonably have been expected to have known; or

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

(ii) that the accused took alternative action that was at least as safe and effective as the terms of the relevant requirement.

## **109 Protection of Environment**

(1) An Operator shall ensure that operations are carried out in a manner that avoids or, where that is not practicable, minimizes any adverse impact on the environment.

(2) The holder of a title shall ensure that all his employees and contractors comply with an approved Code of Environmental Practice, or with the APEA Code of Environmental Practice.

## **110 Inspectors**

(1) Where an Inspector considers -

(a) that any plant is in an unsafe condition; or

(b) that work being carried out

(i) is contravening a provision of the Act, these directions, or any additional conditions imposed by the Director;

(ii) is unsafe; 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 shall specify a day by which the Operator shall report to an Inspector on the action taken in relation to the notice.

(3) An Inspector may -

(a) direct that no further work 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 shall not contravene, or fail to comply with, a notice given under this requirement.

## **111 Operations Near, or Interference with, Public Utilities**

(1) An operation shall 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.

(2) When an operation is to be carried out on a track ordinarily used by the public, or in the vicinity of an inhabited area, the Operator shall give written notice to any council, or land owner, in whose area the road, track or inhabited area is situated.

## **112 Containment of Petroleum and Waste Fluids**

(1) Petroleum recovered shall be confined to tanks, gas holders, pipes or other receptacles in accordance with good oil field practice.

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

(3) Formation water and other waste fluids produced from a well shall be disposed of in a manner acceptable to the Director, and in no case be allowed

to risk public health or safety, or to contaminate water or land not specifically designated for waste disposal.

(4) All waste materials from work on a well or produced from a well (whether or not contaminated with oil) shall, unless otherwise removed from the well site to a satisfactory storage, be dumped or drained to a waste sump.

(5) A waste sump referred to in Sub-Clause (4) -

(a) unless it contains only clean water, shall be kept adequately fenced; and

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

### **113 Borrow Pits**

(1) A borrow pit shall not be established within 125 metres of the centreline of any railroad or permanent road or within 25 metres of a water-course, fence, pipeline or public utility service.

(2) Where borrow material is sampled, any costean or prospecting pit dug shall be filled.

(3) Where soil capable of sustaining plant growth overlies borrow material, the soil shall be stripped, stock-piled and, after borrow operations cease, respread evenly over the disturbed area.

(4) While a borrow pit is unattended, any slopes of free flowing sand, gravel or other loose material shall have a gradient not greater than one vertical to two horizontal.

## **PART II**

### **SAFETY**

#### **Division 1 - General Requirements**

#### **201 General Duty of Care**

An Operator and any contractor shall minimize the risk to health and safety in respect of an operation, so far as is reasonably practicable by -:

- (1) providing and maintaining
  - (a) a safe working environment;
  - (b) safe systems of work;
  - (c) plant and substances in a safe condition; and
- (2) providing to any person carrying out work as part of that operation such information, instruction and training as are reasonably necessary to ensure that the person is safe from injury or risk to health.

#### **202 Safety Manual**

- (1) Operations shall not be carried out unless subject to and in accordance with an approved safety manual.
- (2) In the event of and to the extent of any conflict or inconsistency between an approved safety manual and the requirements of this Schedule, these requirements shall prevail.
- (3) The Safety Manual shall define a work permit system incorporating physical, mechanical and electrical isolation procedures, documentation and responsibilities to control all work activities which are potentially hazardous.

#### **203 Emergency Response Manual**

- (1) Operations shall not be carried out unless there is an approved Emergency Response Manual which sets out procedures to be followed, actions to be taken and personnel responsibilities.
- (2) In the event of an emergency arising during the operations by reason of -
  - (a) the escape or ignition of petroleum;
  - (b) serious injury to a person;

- (c) a vessel or aircraft failing to arrive at its destination at the expected time unless a report has been made as to the reason for the non-arrival;
- (d) a vessel or aircraft sending a distress signal; or
- (e) any other identifiable emergency associated with the operations,

operations shall, where applicable, be carried out in accordance with the Emergency Response Manual referred to in Sub-Clause (1).

#### **204 Updating of Manuals**

Safety and Emergency Response Manuals shall be updated as required by changed circumstances or as required by the Director, and any update of the manuals shall be submitted to the Director for approval.

#### **205 Availability of Manuals and Directions**

Safety and Emergency Response Manuals and all relevant Directions shall be readily available at each installation, and all persons at an installation shall be made aware of them.

#### **206 Instruction of Personnel**

(1) All documentation referred to in Clause 205 shall be drawn to the attention of every person on or before the date on which that person commences to be engaged in operations in the title area, and each such person shall be advised to comply with them.

(2) Any amendments to the documents referred to in Clause 205 shall be drawn immediately to the attention of every person engaged in or concerned with operations in the title area and each such person will be advised to comply with them.

(3) On entering the work place for the first time each person shall be required to sign an acknowledgement that the documents referred to in Clause 205, and the Schedule of Requirements (and any amendments thereto) have been drawn to their attention and that they have been advised to comply with them.

(4) Records of all acknowledgements shall be held by the Operator for a period of not less than 5 years and made available to an Inspector.

#### **207 Admittance to an Operational Site**

A person who is not engaged in or directly concerned with the carrying on of operations or the execution of works shall not be admitted to an installation without approval by the person-in-charge and, where such approval has been

granted, that person shall be given all necessary instructions on or before the arrival at the site.

## **208 Person-in-Charge**

(1) The name of the person-in-charge of any operation shall be clearly displayed on the site of that operation.

(2) The person-in-charge shall ensure to the best of his ability that all personnel in his charge know and comply with all relevant requirements and safety procedures applicable to the operations under his control.

## **209 Communication**

Radio or telephone communication facilities shall be maintained in good working order, at each main operational location, main tank farm, main pumping station and main compressor station and shall also be available in connection with any well drilling, servicing, geological or geophysical operations.

## **210 Command of English**

A person shall not be engaged, whether as employee, agent or contractor, in carrying out of operations, unless they have a command of English sufficient to enable them to readily understand written and spoken directions in English on matters which may affect safety.

## **211 Protective Equipment**

(1) An Operator shall ensure that, where appropriate, personnel engaged in operations shall use protective equipment, safety helmets, eye protection, gloves, safety boots, hearing protection, breathing apparatus, dust masks and clothing, as appropriate, in accordance with the NT Work Health regulations or the approved safety manual:

(2) Where personnel protective equipment is utilized, training in its use and care shall be provided.

## **212 Noise Levels**

A person shall not be exposed to noise levels in excess of those described under the NT Work Health (Occupational Health and Safety) Regulations.

## **213 Radioactive Substances**

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

(2) A person engaged in the handling of, or the use of, radiation apparatus or radio-active substances shall comply with the requirements of all applicable radiation control legislation.

(3) All reasonable precautions shall be taken at production facilities or at any other location where a buildup of naturally occurring radioactive materials may be present.

## **214 Oil Spills**

Where an escape or ignition of petroleum occurs, such action as is necessary to minimise the loss of petroleum and the pollution of the area and to protect persons and property shall be taken and a report required by this Schedule shall be forwarded to the Director.

## **215 Notices**

(1) The following notices (or a combination of those notices) shall, and where 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  
EYE PROTECTION AREA  
NO SMOKING OR NAKED LIGHTS  
KEEP OUT

(2) Other notices shall 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.

## **216 Emergency Drill Exercises**

All persons at an installation shall participate in emergency drill exercises, at a frequency specified in the approved safety manual, under the control of the designated person in charge and a record shall be kept of such drills.

## **217 Fire Fighting Equipment**

(1) Adequate fire fighting equipment shall be provided at each installation and at any other location where there is a risk of the occurrence of fire, or a risk of serious damage in the event of a fire.

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

(3) All fire fighting equipment shall be maintained in good working condition in accordance with AS 1851.

(4) All portable fire fighting extinguishers shall comply with the following Australian Standards: AS 1844, AS 1845, AS 1846, AS 1847, AS 1848 or other approved standards.

## **218**

### **Medical**

(1) An adequate first aid kit shall be maintained at each drilling rig, well testing operation, production facility, construction site and camp.

(2) A suitable stretcher shall be available at each drilling rig.

(3) The Operator shall ensure -

(a) that a person who is suitably trained in first aid (and who is holding a current qualification) is always available to attend at short notice in the event that a person is injured during an operation;

(b) that adequate procedures are in place for the treatment and transportation of any person who may need medical attention; and

(c) that each main operational location has a suitable room that may be used as a first aid room and that is always stocked with an adequate supply of instruments, bandages, dressings, drugs, splints, stretchers, oxygen breathing apparatus and other items for the provision of first aid and shall be aware of the Royal Flying Doctor Service recommendations.

(4) Where a seriously injured person must be transported, the person shall, where practicable, be accompanied by at least one other person (other than the person in charge of the vehicle in which the injured person is being transported) who is suitably trained in first aid.

(5) For the purpose of determining whether a first aid kit, a procedure or first aid supplies are adequate for the purposes of this regulation, consideration shall be given to the nature and extent of the risks associated with the operation being carried out at the relevant time, and generally to the surrounding circumstances.

## **219**

### **Accidents**

(1) If, in connection with petroleum operations, a person dies or suffers a serious injury as a result of which he requires immediate medical attention, the place at which the accident occurred shall not be interfered with except in so

far as may be necessary for the comfort, removal or treatment of an injured person, or for safety, without the approval of an Inspector.

(2) In the event of serious damage to property within the meaning of the Schedule, a person shall not, except in so far as may be necessary for safety, interfere with or further use the property without the approval of an Inspector.

## **220 Drugs and Intoxicants**

A person, who has unlawful possession or control of or is adversely affected by an intoxicant or drug shall be relieved of his duties immediately or shall not commence duties, and removed from the installation as soon as practicable.

## **221 Contaminated Atmosphere**

(1) Where, in a work area -

- (a) there is, or may be, an insufficient supply of oxygen; or
- (b) gases, fumes or vapours exist, or may exist, that could involve a risk to health,

the relevant requirements of AS 1715 and AS 1716 shall be observed.

(2) Where a person is required to work in a confined space, the work shall be carried out in accordance with AS 2865.

(3) Where there is a reasonable risk of the occurrence of hydrogen sulphide in an operation, a suitable number of self contained respiratory apparatus shall be kept available.

(4) Where an abrasive blasting operation is being conducted, Operators shall ensure compliance with the NT Work Health (Occupational Health and Safety) Regulations.

## **222 Ropes and Slings**

Unless otherwise approved -

- (1) steel wire ropes shall comply with AS 3569;
- (2) lifting slings made of wire rope shall comply with AS 1666;
- (3) lifting slings made of natural or synthetic fibre shall comply with AS 1380;
- (4) all wire rope slings shall be marked with identification and safe working load information as detailed in Section 9 of AS 1666;



(5) all steel wire ropes and slings shall be regularly inspected and maintained in accordance with AS 2759, and an approved maintenance and inspection program, and shall be used in accordance with AS 1666 and AS 2759; and

(6) slings and wire ropes under dynamic loading shall have approved end fittings complying with AS 2759. Bull dog and fist grips shall not to be used as a means of fastening in this application.

## **223 Safe Use of Equipment**

(1) A person (other than a supervisor) shall not use or operate any machinery or equipment without authorisation.

(2) A person shall, before starting any machinery or equipment, ensure that all guards are in place and that no person will be endangered.

(3) Where a person uses or operates any tool, machine or equipment, or carries out any work, process or procedure, in circumstances where the safety of the person, or of another, could be endangered, the person shall be competent to perform the work.

(4) All -

- (a) belts, ropes or chains used for the transmission of power (except where operated from a cathead);
- (b) gears, sprockets, clutches, cranks and connecting rods;
- (c) other exposed moving parts of machinery (except catheads and any parts that are supported or driven by a rotary table),

shall be enclosed, screened or railed off so as to prevent them from coming into contact with any person while in use.

(5) Any pinch point on a machine and the cutting edge of any power tool shall, where practicable, be guarded to prevent accidental contact with any person.

(6) An abrasive wheel shall, where practicable, be guarded in a way that restrains flying debris and limits the spread of dust.

(7) Any power-driven machinery shall be fitted with a stopping device located within easy reach of the operator.

(8) A machine that is not driven by its own motor shall be equipped with a clutch or other mechanism that enables the machine to be stopped quickly and safely.

(9) A starting control on a machine shall be designed and located so as to minimize the risk of accidental starting.

**224 Machinery Maintenance**

A person shall not clean, oil or otherwise maintain any machinery in circumstances where the person may come into contact with a moving part of the machinery.

**225 Repair of Plant**

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

**226 Mobile Equipment**

(1) Mobile equipment -

- (a) shall be maintained in good condition;
- (b) shall be used by a competent person; and
- (c) shall 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 shall 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 that tackle broke under tension, the equipment shall be fitted with a guard to protect the operator from that risk.

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

(5) Vehicle and load shall comply with relevant Road Traffic Regulations governing load widths and wide load warning signs.

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

(7) Where the vision of the operator of any mobile equipment is obstructed, the operator shall be assisted by a signal person.

(8) Vehicles driven during hours of darkness shall be appropriately equipped and maintained.

**227            Cranes**

The design, maintenance and operation of a crane, and associated lifting gear, shall be in accordance with the NT Work Health (Occupational Health and Safety) Regulations.

**228            Waterborne Operations**

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

**229            Debris Constituting a Fire Hazard**

(1) Any rubbish, debris or oil refuse that could constitute a fire hazard shall 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 shall then be burned or otherwise disposed of in a proper manner that is consistent with the applicable Code of Environmental Practice.

**230            Flares and Flare Lines**

(1) A flare pit or the end of a flare line shall not be located within 45m of a well, separator, below-ground pipeline, storage tank or temporary production facility, or within 45m of an unprotected source of flammable vapour.

(2) A flare pit or the end of a flare line shall not be located within 100 metres of an established road, railway, above ground pipeline or building.

(3) An access road shall not be sited within 25m of a flare pit or the end of a flare line.

(4) A flare line shall be securely staked down, as far as possible free from unprotected bends, elbows and tees.

(5) All permanent flare installations shall be fenced off and an approved method, acceptable to an Inspector, shall be provided to ignite the flare.

(6) A flare pit shall be sited and constructed so as not to create a hazard to property or natural vegetation.

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

(8) Where a flare could be extinguished during production or testing operations, provision shall be made for relighting the flare by a device acceptable to an Inspector.

**231****Temporary Well Site Production Equipment**

- (1) A fire or unprotected flame or any flame type equipment shall not be located within 45m of a well or unprotected source of flammable vapour.
- (2) Subject to Sub-Clause (3), an oil storage tank shall not be located within 45m of a well.
- (3) The Director may allow the distance referred to in Sub-Clause (2) to be reduced, but the distance shall not be less than 25m.
- (4) Flame-type equipment shall 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 shall not be placed within 25m of a well, or within 25m of other different flammable materials.
- (6) This requirement does not prevent the grouping of similar items of production equipment.

**232****Siting of Production Equipment**

- (1) All permanent production equipment and process vessels shall be sited and spaced after taking into account AS 2430, and details of those sitings and spacings shall be furnished to the Director or an Inspector on request.
- (2) Production equipment shall not be located within 45m of an established road, railway or building.
- (3) Surface hydrocarbon storage tanks, other than temporary well test tanks, shall be enclosed by a main bund wall and the bund capacity shall be greater than the volume of the largest tank or group of inter-connected tanks (whichever is the greater), plus 10 per cent of the combined volume of all other tanks within the bund.
- (4) Subject to Sub-Clause (5), a tank shall not be located within 45m of a well.
- (5) The Director may allow the distance referred to in Sub-Clause (4) to be reduced, but the distance shall not be less than 25m.
- (6) A pressure vessel shall not be located within a bund surrounding a tank or group of tanks.

**233****Venting of Flammable Vapours**

- (1) All process vessels, instruments and equipment from which flammable vapour may be emitted shall 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 shall be fitted with flame arresters or other similar safety devices.

#### **234 Smoking, Naked Lights, Welding and Cutting**

(1) Smoking, open fires and naked lights shall not be allowed within 45m of a well or plant which has a source of flammable vapour.

(2) Except during gas drilling operations, a well-site geological unit that contains unprotected electrical or gas fuelled equipment may be located within 45m, but not less than 15m, from plant referred to in Sub-Clause (1), subject to the following conditions -

(a) that the only drilling operation during which the use of unprotected electrical or gas-fuelled equipment may occur is a routine non-hazardous drilling operation; and

(b) that any electrical or gas fuel circuit to which unprotected equipment is connected is controlled by a master switch or shut-off that is readily accessible to any person in the unit to enable the supply of fuel to be immediately shut-off in an emergency.

(3) This requirement does not prevent the use of welding or flame cutting plant within the 45m distance referred to in Sub-Clause (1), provided that the use of the equipment in such a situation has been authorized by the person responsible for the particular operation and that all reasonable precautions have been taken to ensure the safety of persons in the area.

#### **235 Internal Combustion Engines**

(1) An internal combustion engine shall not be used within 30 metres 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 shall 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;

(d) the end of an exhaust pipe shall not be closer than 6 metres to the vertical centre line of the well, projected upwards and shall be directed away from the well; and

- (e) exhaust pipes, manifolds and turbo chargers are insulated, cooled or otherwise constructed or protected so as to prevent the ignition of flammable vapours or liquids.
- (3) A diesel engine shall 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 controlled from the rig floor, or some other means approved in writing by the Director;
  - (b) a system that injects inert gas into the cylinders and is operated by engine overspeed, remote controlled from the rig floor, or some other means approved in writing 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 in writing by, the Director.
- (4) Where an engine is fitted with a system referred to in Sub-Clause (3)(a) or (b), the engine and its shut-down system shall be tested as follows:
- (a) during the drilling of a well, the engines shall 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 shall 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 shall be tested at the commencement of operations and thereafter at intervals not exceeding one month.
- (5) Where a test is carried out under Sub-Clause (4), a record of the test shall be made in the tour report or in a log book.
- (6) Sub-Clauses (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.

**236 Fuel Tanks**

- (1) No liquid fuel shall be stored within 45m of a well unless it is stored in an operating storage tank.
- (2) The drainage from any place where liquid fuel is stored shall be in a direction away from any well within the immediate vicinity.
- (3) All reasonable precautions shall be taken to ensure that any leakage or spillage from any fuel storage tank will be adequately contained to prevent any damage to the immediate environment.

**237 Lighting**

A work site shall have adequate lighting in accordance with the NT Work Health (Occupational Health and Safety) Regulations.

**238 Swabbing at Night**

An oil or gas well shall not be swabbed into production during the hours of darkness.

**239 Temporary Cessation of any Operation**

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

**240 General Safety Precautions**

- (1) A person shall not use any unsafe plant or substance.
- (2) All hand tools shall be kept in good state of repair and neatly stored when not in use.
- (3) All fixed platforms, drilling and workover rig working floors, walkways, stairways and ladders shall conform with AS 1657.
- (4) Notwithstanding Sub-Clause (3), chain or wire rope may be used as a handrail on mud tank walkways provided that the chain or wire rope is kept taut.
- (5) All buildings and other structures, machinery and equipment shall be of sufficient size and strength to safely withstand loads placed on them and to perform safely the functions for which they are designed.

- (6) All buildings and other structures, machinery and equipment shall be inspected on a regular basis and a proper record of the inspection, signed by the person who conducted the inspection, shall be entered in the tour report or a log book or in some other similar system.
- (7) Where any unsafe or defective plant or unsafe situation is found on an inspection under Sub-Clause (6) -
- (a) an appropriate note shall be included in the report referred to in that Sub-Clause;
  - (b) action shall be taken to repair or replace the plant, or to rectify the situation; and
  - (c) once that action is taken, a further record shall be made.
- (8) a log book, or similar system, shall be kept at each operational site or the central field office.
- (9) Any information recorded in a tour report or log book (or other system) shall be accurate and include all relevant dates and times.

## **241**

### **Working In Elevated Places**

- (1) A person shall not, while climbing a ladder, mast or structure (other than by way of a stairway or ramp) carry any tool, equipment or materials unless the person's hands are free at all times to secure a safe hold.
- (2) Tools, equipment or materials shall not be carried or placed in a mast or derrick unless they are immediately required for use, and in that case proper steps shall be taken to prevent them from falling.
- (3) Where a person is engaged in manual activity at a height of more than 4.5m while standing on a ladder or ginpole, or in a mast, the person shall use a safety belt.



## Division 2 - Safe Drilling Practices

242

### **Raising and Lowering Masts and Derricks**

- (1) Before a mast is raised or lowered, or a derrick is erected or dismantled, a thorough inspection shall be carried out by the toolpusher or some other competent person to ensure, as far as is practicable, that the mast or derrick and all its components are in a safe condition.
- (2) A toolpusher or other competent person shall be in charge of an operation to raise or lower a mast or to erect or dismantle a derrick.
- (3) Work shall not be carried out below, or in the immediate vicinity of, a mast while it is being raised or lowered.
- (4) A mast or derrick that is of a height exceeding 30 metres above ground level shall be fitted with a mast head light which shall 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 shall be provided to distribute concentrated loads from the mast or mast mounts, or from the derrick, to the ground.
- (6) Supplemental footings provided under Sub-Clause (5) shall 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 shall be graded and adequately drained.
- (8) The guying system for a mast shall be constructed and installed in accordance with the manufacturer's specifications and guy line ground anchors shall be adequate taking into account the anticipated service and soil conditions.
- (9) A mast or derrick shall not be operated in excess of its rated capacity.
- (10) Before any structural changes or repairs are made to a mast or derrick, the manufacturer or a competent engineer shall be consulted about the effects of the proposed changes or repairs and the materials and welding techniques that should be used.
- (11) The Director shall be advised in writing whenever substantial changes or repairs are made to a mast.
- (12) Loose tools and materials shall be removed from a mast or derrick before it is raised, lowered or operated.

**243 Platforms and Handrails**

All necessary platforms, stairways and handrails shall be installed and securely fastened in position in accordance with AS 1658 before drilling operations are commenced or a well is re-entered for any reason,

**244 Drawworks Control**

- (1) An automatic cathead shall have a separate control device that will prevent accidental engagement.
- (2) Where practicable, a drawworks master control lever shall be locked with a locking device when the drawworks is not in use.
- (3) A person operating the drawworks controls shall, before engaging the controls, ensure that all persons are warned and clear of the area.
- (4) All drawworks controls shall be properly marked.

**245 Making-up and Breaking Joints**

- (1) A person shall not snap-up a tool joint with an automatic cathead or pipe joint breaker of the jaw clutch type that automatically disengages its clutch at the completion of a fixed cycle or travel.
- (2) A person shall not use the rotary table for the final making-up or initial breaking-out of a pipe connection.
- (3) The spinning chain shall not be handled over the rotary table while it is in motion.

**246 Protection of People at Work**

- (1) Every floor, platform, walkway, ladder and runway shall be kept reasonably clear of obstructions and free from drilling fluids, mud, oil, or other substances that might create a risk to safety or prevent or hinder the escape of persons in an emergency.
- (2) Drum stocks of fuel or lubricating oil shall be stored as far as reasonably possible from areas where drilling operations are being carried out and shall be in a shaded area if possible.
- (3) Gas cylinders shall be properly secured, upright in a shaded area.
- (4) Flammable liquids with a flashpoint below 38°C, as determined by the method IP 170 set out in "Standard Methods for Training

Petroleum and its Products" published by the Institute of Petroleum, London, England, shall be stored at a safe distance from a drilling installation.

**247**

### **Ancillary Escape**

(1) Each drilling rig mast or derrick shall be equipped with a specially rigged and securely anchored escape line that is attached to the mast or derrick and that provides a ready and convenient means of escape for each person from the principal working platform.

(2) The escape line shall be installed before drilling out of the surface casing.

(3) The escape line shall be 12mm diameter wire rope and shall be tightened to a tension that allows a person descending on the line to touch clear ground between 6m to 8m from the ground anchor.

(4) The minimum length of the escape line shall be double the vertical distance between the ground and the point at which it is attached to the mast.

(5) An escape line shall be equipped with a safety buggy or other approved device fitted with a suitable handbrake and that buggy or device shall be kept at the principal working platform and be readily accessible at all times.

(6) A person shall not ride the safety buggy or other device from the mast or derrick except in an emergency or for training purposes.

(7) The safety buggy or other device shall be given running and static tests on or near the ground before being hoisted to the working platform, and static tests shall be carried out at intervals not exceeding one week thereafter to ensure that it is in good working condition.

**248**

### **Stabbing Boards**

(1) A stabbing board may be used as a temporary working platform when work cannot be performed from a fixed platform.

(2) The stabbing board shall not be less than 300 millimetres in width and of sufficient strength to support safely any load that it will be expected to bear.

(3) Each end of the stabbing board shall project at least 300 millimetres beyond the inner edges of the derrick girts or other supports on which it is placed.

(4) Each end of the stabbing board shall be secured to the derrick girts or other supports on which it is placed by wire rope, chain or equivalent safety fastening.

(5) A safety fastening shall be so secured as to prevent the stabbing board from being shifted longitudinally from its supports, and to prevent either end from falling should it be broken, and should also have sufficient slack -

- (a) to permit the stabbing board to be tipped up on its edge should the travelling block, or the equipment attached to it or suspended from it, catch under the board in its upward travel; and
- (b) to permit the board to move away from the travelling block, or the equipment attached to it or suspended from it, should the block swing sideways against the board.

(6) The supports on each side of a derrick of which a stabbing board is placed shall be at the same elevation and the stabbing board shall be rigid and horizontal.

(7) A stabbing board constructed of wood shall be made of a suitable wood free from knots, and shall be reinforced.

**249**

### **Safety Belts**

(1) Where a person is required to work above the rig floor in a place which is not completely protected by a handrail that complies with these regulations, the person shall be supplied with, and shall use, a safety belt.

(2) The rope attached to the safety belt shall be a manila rope that is at least 25mm in diameter, or other rope of equal or greater strength, and shall be securely fastened to the mast or derrick, or to a running line stretched across the mast or derrick approximately 2m above the platform on which the person is working.

(3) A running line may also be manila rope that is at least 25mm in diameter, or other rope of equal strength.

(4) Safety belt lines and fittings shall be inspected daily and kept in good repair.

**250**

### **Riding Hoist Equipment**

(1) A person shall not ride the travelling block, hook or elevators, or slide down a pipe or kelly hose, or any other line other than the escape line.

(2) A person shall not ride, or be required or permitted to ride the catline. A man riding winch line may be used to perform duties that cannot be performed by a person from an inside mast platform, stabbing board, or the mast floor, and then only by sitting in a riding belt securely attached to the winchline, or in another equally safe and secure carriage.

(3) When a person is being raised by the winch line, the driller and another person authorized by the driller or toolpusher shall be responsible for operating the man riding winch, and each shall remain there until the person returns to the rig floor.

## **251 Weight Indicator**

(1) A drilling rig shall 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 shall be attached to the indicator and secured to the derrick or mast.

## **252 Brakes**

(1) Where practicable, the brakes on the drawworks of a drilling rig shall be tested by each driller when he comes on tour, and shall also be examined at least once each week by the toolpusher, or a person acting on his behalf.

(2) Except when operating under automatic feed control, a brake shall not be left unattended unless it is chained down.

## **253 Rotary Table**

(1) A rotary table shall not be engaged until all persons and materials are clear.

(2) Hoses, lines or chains shall not be handled or used near a rotary table while the rotary table is in motion.

(3) When visibility on a rig floor is obscured, a person shall not work on the rig floor while the rotary table is in motion.

## **254 Racked Pipes**

(1) The rig floor shall be kept drained of all fluids draining from drill pipe, collars or tubing racked in the mast or derrick.

(2) When drill pipe, collars, tubing, casing, rods or other similar equipment are racked in a mast or derrick, they shall be secured at or near the top ends so as to prevent them from falling out of or across the mast or derrick.

**255**

### **Mud Savers**

(1) A mud saver that prevents liquid from being sprayed on a person at work and, as far as is practicable, from being spilled on the floor shall be used where wet pipe or tubing is being unscrewed and disconnected.

(2) The mud saver shall have a hose or pipe connected to the bottom of it that conveys the saved liquid to an appropriate place away from the rig floor, walkways and passageways.

**256**

### **Rig Safety**

(1) An exit shall be provided -

(a) on at least two sides of the rig floor; and

(b) from the dog-house directly outside, away from the rig floor.

(2) An exit door shall open away from the rig floor and shall not be held closed with a lock or an outside latch while a person is working on the rig floor.

(3) Access and egress to and from a floor, platform, walkway or runway that is 600 millimetres or more above or below ground level, or an adjacent floor level, shall be by means of a stairway, ramp, walkway or runway that is at least 600 millimetres wide and placed at the most convenient and safe location for operational purposes.

(4) Except for an opening that is necessary for the installation or use of equipment, each rig floor shall completely cover the area within the perimeter of the mast or derrick substructure and any work area that extends beyond it.

(5) Unless occupied by equipment or immediately required for the purposes of work, an opening in a rig floor shall be covered or guarded so as to prevent a person from stepping into or falling through the opening.

(6) A rig floor, walkway or engine room floor shall not be used as a storage platform for equipment or material that is not required for immediate or emergency use, unless it is properly racked or stored so as to avoid congestion.

(7) The substructure in the vicinity of the wellhead shall be adequately ventilated.

**257**

### **Mast and Derrick Platforms**

(1) Each mast and derrick shall, unless otherwise approved, conform to the requirements of API STD 4A, API STD 4D and API STD 4E.

(2) Each mast and derrick shall have a landing platform that is level with, and extends to, the derrickman's principal working platform.

(3) Each outside mast and derrick platform -

(a) shall be at least 500 millimetres in width; and

(b) shall have openings not exceeding 750 millimetres by 750 millimetres for persons climbing the mast or derrick ladders.

(4) The outer edges of each outside mast platform, derrick platform and ladder offset platform shall be equipped with a handrail and toeboard that conform with AS 1657.

(5) A drilling derrick and any mast shall, if its design so provides, be equipped with a platform at the crown -

(a) that is fitted at its outer edges with a handrail and toeboard that conform with AS 1657; and

(b) that is, as far as practicable, at least 500 millimetres wide.

**258**

### **Inside Derrick Platforms**

A platform erected on the inside of a derrick (except a stabbing board) shall completely cover the space from the working edge of the platform back to the legs and girts of the derrick and shall comply with the requirements of AS 1576 and AS 1577 where necessary.

**259**

### **Ladders and Stairways**

(1) Unless fitted with a climbing device, that is acceptable to an Inspector, each mast or derrick ladder shall be fitted with ladder platforms at appropriate levels and shall comply with the requirements of AS 1657 where necessary.

(2) Where practicable, a stairway shall be installed beside the "V" door ramp so as to extend from the pipe racks to the rig floor (although such a stairway need only be fitted with one handrail on the outer side).

260

### **Hoisting and Other Wire Ropes**

(1) Hoisting materials used in drilling operations shall, unless otherwise approved, conform to the relevant requirements of API Spec 8A, and API Spec 9A.

(2) A rotary drilling line service record shall be kept on each rotary drilling rig and shall be produced to an Inspector on request.

(3) The record shall be in a form that accords with the provisions of API RP 9B or such other form as may be acceptable to the Director.

(4) The minimum design factors for a hoisting line that is used for drilling, servicing or abandoning operations shall conform with API RP 9B.

(5) A person who is operating hoisting equipment shall use care to minimize shocks or impact, and to minimize acceleration or deceleration of the load.

(6) Where part of a hoisting line is unserviceable, unsafe or damaged (because of worn or broken wires, corrosion, or otherwise), it shall be replaced.

(7) A sandline may be spliced but a rotary hoisting line may not be spliced.

(8) The end of a hoisting line wound on a drum shall be fastened to the drum in a manner acceptable to an Inspector and there shall be a sufficient number of wraps of line on the drum to prevent undue strain being placed on the fastening to the drum.

(9) In a line cutting or slipping operation -

(a) the blocks shall be laid down on the rig floor; or

(b) a wire rope not less than 25mm in diameter shall be used to support the blocks and each end of the line shall be secured with at least three wire rope clamps, or with some other securing device acceptable to an Inspector.

(10) When a load is placed on a hoisting line, the line shall not, at any point between its point of contact with the hoist drum and the dead line anchor, be in direct contact with a mast member or any equipment or material in the mast not designed for such contact.



(11) Where a hoisting line can swing and make contact with a mast member or equipment, or any material in the mast, a stabilizer or stabilizers shall be used to prevent the line from making that contact (but a stabilizer shall not grip the line so tightly as to prevent free movement of the line through the stabilizer).

(12) Metal parts of a line spooler or line stabilizer shall be guarded against contact with the hoist line by rubber or other suitable non-metallic material.

(13) An overhead sheave or pulley on which a line, line-spooler or counterweight rope runs shall be securely fastened to its support and a safety sling shall be fitted to prevent the line from falling in the event of sheave failure.

(14) All rope drums, sheaves and rollers shall be generally in accordance with the recommendations of the rope suppliers.

## 261

### **Travelling Blocks**

(1) The sheaves of a travelling block shall have heavy guards to prevent accidental contact by any person or thing with the sheaves, or with the nip point where the hoisting lines run onto and off the sheaves.

(2) Travelling block sheave guards shall be securely fastened to the travelling block to prevent the guards from becoming accidentally displaced.

(3) A travelling block hook, and any hook or open link suspended from a travelling block, to which an elevator, elevator link, swivel bail or other equipment is either directly or indirectly attached (including the open hooks or links of such attached equipment) shall be equipped with a safety latch or device that will provide a completely and securely closed hook or link.

(4) Every travelling block, travelling block hook, elevator and elevator link and other similar travelling equipment shall, as far as practicable, be free of projecting bolts, nuts, pins or other parts that may catch clothing or foul the mast or derrick.

(5) A drilling rig shall be fitted with a device, acceptable to an Inspector, that disengages the power to the hoisting drum and applies the brake to prevent the travelling block from coming into contact with the crown structure.

**Catheads**

- (1) When a rope or line is being operated on a cathead, a competent person shall be at the controls of the cathead.
- (2) A cathead shall be immediately stopped in an emergency.
- (3) A cathead on which a rope or line is manually operated shall be equipped with a device that keeps the first full encircling wrap of rope from contact with the pinch point of the on-running rope at its first point of contact with the cathead.
- (4) The device referred to in Sub-Clause (3) -
  - (a) shall have its edge nearest the friction surface of the cathead fitted and adjusted to within 6.5mm of the friction surface of the cathead; and
  - (b) shall be maintained free of sharp edges that may cut or materially abrade a rope used on the cathead.
- (5) The friction surface and flanges of a cathead on which a rope or line is manually operated shall be as smooth as practicable.
- (6) The friction surface of a cathead shall have a uniform diameter across its entire width between the inner and outer flanges, to a tolerance of no more than 4.5mm.
- (7) The key way and projecting key on a cathead shall be covered with a smooth thimble or plate.
- (8) When a rope or line is being used on a cathead, the excess rope or line shall be coiled or spooled in a safe place.
- (9) All other ropes and lines shall be placed so as not to come into contact with the cathead, or any rope or line in use on the cathead.
- (10) A rope or line operated manually on a cathead shall not be left unattended while wrapped on, or in contact with, a cathead, other than when the power has been disconnected and steps taken to prevent the power being turned on.
- (11) Except for specially spliced ropes that are used for spinning casing, a rope splice or a frayed part of a rope or line shall not be operated manually on the friction surface of a cathead.
- (12) Only manila rope may be used on a cathead.

(13) A headache post or guard shall be in position whenever a line is being run on or off a cathead at an angle that brings the line near to the person at the controls.

**263**

### **Guards**

(1) Heavy metal guards that are strong enough to withstand the shock of a sprocket chain breaking shall be installed on both sides of the drawworks so as to guard all drive sprockets and chains and to prevent a person from coming into contact with the moving parts.

(2) The guard for the low-gear drum-drive sprockets and chain next to the driller shall be flanged with a steel plate so that if a chain breaks, it cannot strike the driller or foul the brake lever.

(3) The pinion-shaft, couplings and bevel gears on a chain-drive rotary table shall be guarded with strong metal shields.

(4) The tops and outer sides of the hoisting drum brake flanges shall be guarded by a steel plate that is at least 3mm thick, installed with a minimum working clearance from the brake and securely bolted in place.

(5) A rotary table shall have at least 125mm of its top outer surface covered in a rough-tread metal plate guard -

(a) that is at least 9.5mm thick; and

(b) that has welded to its outer edge a circular metal band or skirt that is at least 6.3mm thick and that extends down to cover completely the exposed rotating side of the rotary table (including the pinion gear).

(6) A substantial guard of plate or expanded mesh shall be installed in front of the hoisting drum so as to reduce the area of the opening in the drum enclosure to the minimum necessary for the equipment in use.

**264**

### **Pressure Hoses**

All mud system and cementing pressure hoses and all swivel joints on steel pressure hoses shall be equipped with -

(a) clamps and wire-rope that has a diameter of 15mm; or

(b) a fastening of equal strength that is secured to adequate supports to prevent dangerous movement in the case of coupling, near coupling hose or swivel joint failure.

265

### **Crown Blocks**

- (1) The crown block assembly shall be securely fastened to the crown block beams so that no part of the assembly can be accidentally dislodged under normal operating conditions.
- (2) No opening between the beams, the main supporting members or the framework of a crown block may be large enough to allow a person to fall through.
- (3) Where bumper blocks are attached to the underside of the crown beams, the blocks shall have a safety-cable that is fastened along their full length, and to the mast or derrick at both ends.

266

### **Counter-balance**

- (1) Where a tong or other counter-balance is not fully encased or run in permanent guides with positive protection against over-run, the counter balance shall be positioned and constrained so that it does not create a hazard to any person.
- (2) The wire-rope connecting a tong to a counter-weight shall be at least 12.5mm in diameter.

267

### **Pipe Racks and Pipe Handling**

- (1) Pipe racks shall be firm, level, designed and constructed so as to support the required load and fitted with end stops.
- (2) When pipe is being transferred between pipe racks, catwalks or vehicles, temporary supports or skids shall be constructed, placed and anchored so as to support adequately the particular load.
- (3) Spacers shall be used between the layers of pipe or other items on a pipe rack.
- (4) When pipe or other similar items are being loaded, unloaded or otherwise moved, a person shall not be on top of the load, or between the load and any pipe rack.
- (5) Where pipe is to be loaded, unloaded or otherwise moved, it shall be handled in a way such that pipe movement is controlled.
- (6) Pipe shall be loaded on to or unloaded from a truck by one layer at a time.
- (7) Lifting subs shall be used during the transfer of drill collars, tubular goods or other similar items that do not have shoulders or recesses from the "V" door ramp into the mast.

(8) A trailer, if it is to be used for transporting pipe, or as a pipe rack during drilling, servicing or pipe salvaging operations, shall have a device fitted to prevent pipe movement.

(9) A guard that is fitted to a trailer side shall be so designed and constructed as to ensure that when pipe is being hoisted into the mast, the lower end of the pipe will not roll off the trailer and, when the pipe trailer deck is higher than the rotary table, the inward wing of the lower end of the collar shall be controlled by a snubbing line or similar means.

**268**

### **Pipe Hooks**

Where a pipe or rod hook is used above the rig floor, the hook shall be secured to the mast or derrick so as to prevent the hook from falling.

**269**

### **Back-up Posts and Tong Safety Lines**

(1) A rotary tong shall be attached to a back-up post, or to the mast, by means of two wire rope safety lines that are at least 15.5mm in diameter and that are secured at each end by at least three wire rope clamps, or equivalent fittings (except that on a single stand portable mast that uses a small tong, the safety lines need only be 12.5mm in diameter).

(2) Each fitting used to attach a wire rope safety line to the back-up post or mast shall have a breaking strength equal to, or greater than, the combined breaking strength of all the wire ropes attached to it.

(3) A wire rope safety line shall not be secured to an object that may damage, or be damaged by, the wire rope.

**270**

### **Pressure Relief Valves**

(1) A pressure relief device shall be installed on each power driven mud pump and there shall not be a valve between the pump and the pressure relief device.

(2) The pressure relief device shall be set to discharge at a pressure that is less than the manufacturer's recommended maximum working pressure of the pump and connecting pipes and fittings.

(3) A shear pin used in a pressure relief device shall be of a design and strength specified by the manufacturer.

(4) A guard shall be placed around the shear pin and spindle on a pressure relief device.

- (5) Any fluid discharged from a pressure relief device shall be directed to a place where it will not endanger any person.
- (6) There shall not be a valve of any kind in the discharge opening of a pressure relief device, or in the discharge pipe connected to it.
- (7) The piping connected to the pressure side and discharge side of a pressure relief device shall not be smaller than the normal pipe size openings on the pressure relief device.
- (8) The piping on the discharge side of a pressure relief device shall be securely tied down and self draining.
- (9) All pipes and fittings connected to or used in mud circulating systems shall have a rating sufficient to withstand the maximum working pressure of the pump.

### **Division 3 - Air and Gas Drilling**

#### **271 General**

- (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 Clause under this Division and another Clause, the Clause under this Division prevails to the extent of the inconsistency.
- (3) The person in charge of an operation that uses air or gas drilling shall, especially in relation to wellhead design and blowout prevention equipment, take into account the recommendation of API RP 54, section 17.
- (4) While air or gas drilling is in progress, materials and equipment shall comply with API RP 54.

#### **272 Warning Notices**

A warning notice that complies with this Schedule and that states -

**CAUTION--GAS DRILLING IN PROGRESS;**

or

**CAUTION--AIR DRILLING IN PROGRESS;**

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

#### **273 Delivery Lines**

- (1) Where a high pressure gas delivery line is not buried, warning notices that comply with this Schedule and that state -

**CAUTION--HIGH PRESSURE GAS**

shall be displayed to indicate the route of the line.

- (2) The main air or gas supply line shall 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 shall 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 shall have a rating sufficient to withstand the maximum supply pressure.

(5) All pressure lines shall 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 hose failure.

**274**

### **Vehicles**

Any vehicle that is not required for an operation on a well shall be kept at least 45m from the well.

**275**

### **Fire Precautions**

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

(2) At least one water or mud nozzle shall be permanently mounted under the substructure and pointed directly at the rotating blowout preventor assembly.

(3) The line between the high pressure pump and the nozzle shall 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 shall be installed both at the pump and at the driller's control panel.

**276**

### **Siting of Compressors**

(1) Where practicable compressors and boosters used in drilling shall be located at least 45m from the rig and the gas separator shall be positioned so that it is visible to the driller.

(2) Oil and diesel fuel shall be stored at least 15m from the compressors.

**277**

### **High Pressure Lines and Manifolds**

(1) The entire gas or air supply system shall be designed to meet maximum expected operating pressures.



(2) Any main valve in the supply system that may need to be closed in the event of an emergency shall be rapid acting, clearly labelled and readily accessible.

**278**

### **Blooey Line**

(1) A blooey or bleed-off line shall extend at least 45m from the wellhead and shall, where practicable, be laid downwind of the well, or at right angles to the direction of the prevailing wind.

(2) Any geological sample catcher installed on a blooey line shall be designed to avoid flashback and to protect persons from dust.

(3) A space shall be cleared around the end of a blooey or bleed-off line so as to prevent the ignition of vegetation.

(4) Where dust discharged by drilling causes a risk to the health of any person, water shall be injected into the blooey line to suppress the dust.

(5) Any gas discharged from a blooey or bleed-off line shall be immediately ignited by a safe and reliable method acceptable to an Inspector.

**279**

### **Substructure Ventilation**

The rig substructure shall be kept adequately ventilated (either by natural ventilation or by fans).

**280**

### **Supply Line Valves**

(1) The main air or gas supply line shall have at least two valves, one on the standpipe and accessible from the rig floor, and the other at least 25m from the well.

(2) In the case of high pressure gas drilling, the main supply line shall have a valve at least 45m before the place where the first item of major equipment is connected to the delivery line (but in this case the second valve referred to in Sub-Clause (1) need not be fitted).

**281**

### **Drillstring Float**

A downhole float valve shall be fitted in the drilling string and both top and bottom kelly cocks shall be installed.

**282**

**Mud Stocks**

Mud stocks that are adequate to fill the hole and to establish and maintain circulation shall be kept in good condition by frequent mixing to enable use at any time.

**283**

**Gas Detection Equipment**

At least one portable gas detector, of a kind acceptable to an Inspector, shall be available for use where air or gas drilling is in progress.

## Division 4 - Reporting

284

### **Reporting of Death and Serious Injury**

- (1) In this Clause and this Schedule a reference to a serious injury is a reference to an injury which requires immediate attention by a medical practitioner.
- (2) Where a person dies or suffers a serious injury -
  - (a) a report shall forthwith be made to an Inspector; and
  - (b) a report in writing giving full particulars and all related circumstances shall be transmitted to the Director as soon as practicable after the occurrence.

285

### **Written Records of Death and Injury**

- (1) A record in an approved form and as far as practicable in accordance with AS 1885.1 shall be kept of each death and injury, whether or not a serious injury, suffered by a person including -
  - (a) particulars of the death or injury;
  - (b) the circumstances leading to its occurrence; and
  - (c) any treatment given to the injured person and the names of any medical practitioners consulted.
- (2) A copy of the records, referred to in Sub-Clause (1), of injuries shall be transmitted to the Director not later than the 15th day of each month covering injuries that occurred during the last preceding calendar month together with such statistical analyses and injury indices as the Director determines.

286

### **Reporting Serious Damage**

- (1) In this Clause and this Schedule serious damage to property means -
  - (a) the loss or destruction of property with a value exceeding \$20,000;
  - (b) damage to property, the repair of which damage would cost an amount exceeding \$20,000; or
  - (c) a loss, destruction or damage to any property by reason of which any person dies or suffers serious injury.

- (2) Where serious damage to property occurs -
- (a) a report of each occurrence shall forthwith be made to an Inspector; and
  - (b) a report in writing shall be submitted to the Director as soon as practicable specifying -
    - (i) the date, time and place of such occurrence;
    - (ii) particulars of the damage;
    - (iii) the events so far as they are known or suspected that caused or contributed to the occurrence;
    - (iv) particulars of repairs carried out or proposed to be carried out to damaged property; and
    - (v) measures taken, or to be taken, to prevent a possible recurrence.

287

#### **Reporting a Potentially Hazardous Event**

Where an event occurs which is not in the normal or ordinary course of a particular operation and which is professionally considered to have been likely to cause injury to a person or serious damage to property -

- (a) a report of the event shall forthwith be made to an Inspector; and
- (b) a report in writing of the event shall be submitted to the Director as soon as practicable specifying measures taken or to be taken to prevent a possible recurrence.

288

#### **Reporting Damage Less Than \$20,000**

Where damage to property occurs which is not serious damage to property but which results in a significant loss of structural integrity or load bearing capacity in the property damaged or results in some other significant unsafe condition -

- (a) a report of the damage shall forthwith be made to an Inspector; and
- (b) a report in writing shall be submitted to the Director as soon as practicable specifying measures taken or to be taken to prevent a possible recurrence.

289

### **Reporting Escape or Ignition of Petroleum and Other Material**

(1) A report shall forthwith be made to an Inspector upon the occurrence of -

- (a) a significant spillage of hydrocarbons which in areas of inland waters is in excess of 80 litres, in other areas is in excess of 300 litres and if in gaseous form is in excess of 500 m<sup>3</sup>; or
- (b) any uncontrolled escape or ignition of petroleum or any other flammable or combustible material causing a potentially hazardous situation.

(2) In the event of any occurrence referred to in Sub-Clause (1) a report in writing shall be submitted to the Director as soon as practicable specifying -

- (a) the date, time and place of the occurrence;
- (b) the estimated quantity of liquid that escaped or burned;
- (c) particulars of any damage caused;
- (d) the events so far as they are known or suspected to have caused or contributed to the escape or ignition;
- (e) particulars of methods used to control the escape or ignition;
- (f) particulars of methods used or proposed to be used to repair property damaged; and
- (g) measures taken, or to be taken, to prevent a possible recurrence.

290

### **Reporting of Emergencies**

Any emergency shall be reported forthwith to an Inspector.

291

### **Reporting Radiation Monitoring**

Where, as a requirement of any relevant legislation relating to radiation control, a report is prepared in respect of the monitoring of radiation in connection with petroleum operations, a copy of that report shall be sent to the Director as soon as practicable.

## **PART 111**

### **ELECTRICAL INSTALLATIONS**

#### **301 Wiring Rules and Standards**

Subject to the requirements of any Act, all electric wiring, earthing and installations used in petroleum exploration or production operations shall comply with the relevant requirements of the Australian Wiring Rules and Standards.

#### **302 Power Supply**

The power supply shall be protected against -

- (a) short circuit and overload; and
- (b) leakage of current to earth.

#### **303 Protection of Circuits**

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

(2) A circuit above extra-low voltage shall be protected against the leakage of current to earth by a residual current device as follows:

- (a) the residual current device breaker shall comply with the requirements of Australian Standards, and operate when the earth leakage current exceeds the following values:
  - (i) 1 ampere on low voltage circuits;
  - (ii) 30 milliamperes on circuits supplying general purpose outlets, portable and hand held tools and apparatus;
- (b) the operating time for the trip of an earth leakage fault shall be within the time stated by the manufacturer of the residual current device; and
- (c) the residual current device shall be installed such that it is readily accessible for testing purposes.

**Hazardous Locations**

(1) Hazardous locations for all production and processing operations shall be as defined in AS 2430, and details of those locations shall be furnished to the Director or an Inspector on request.

(2) Hazardous locations on or about a drilling rig and during well servicing or well testing operations, in relation to which the provisions of Class 1, Zone 1 and Class 1, Zone 2 of the SAA Wiring Rules apply, are as follows:

- (a) Class 1, Zone 1: all areas classified as division 1 in API RP 500B;
- (b) Class 1, Zone 2: the total mast space, all areas within 15m of a well or temporary production facility, and all areas within 12m of an area classified as Class 1, Zone 1, other than mud tanks containing oil-free drilling fluids downstream of the shale shaker tank (in which case the Class 1, Zone 2 classification will apply for a distance of 3m from the top of such tanks).

**Electrical Generators, Alternators and Motors**

(1) An electrical generator or alternator that does not have approved flame protection shall not be operated within 15m of a well or production facility, or within 12m of an area classified as Class 1, Zone 1.

(2) Unless an electric motor has approved flame protection, its cooling or purge air shall not be drawn from a point within 15m of a well or production facility, or within 12m of an area classified as Class 1, Zone 1.

(3) Sub-Clauses (1) and (2) do not prevent the use of a brushless electric alternator, generator or motor on a permanent well pumping installation where -

- (a) the alternator, generator or motor is not within 6m of 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 5MPa.

**306**

### **Substations and Distribution Centres**

A substation or distribution centre shall only be accessed by persons authorised by the person-in-charge and shall be -

- (a) kept dry and free from debris;
- (b) not be used for storage;
- (c) provided with adequate fixed lighting;
- (d) provided with fire protection complying with the appropriate Australian Standards;
- (e) provided with durable non-hygroscopic notices as follows:
  - (i) containing directions as to resuscitation of persons suffering from electric shock;
  - (ii) containing directions as to procedure in case of fire; and
  - (iii) regulating the access and use of apparatus.

**307**

### **Electric Shock**

Instructions on the procedure and treatment to be followed in case of electric shock shall be kept prominently displayed on the rig floor or in the driller's doghouse, in any generator house and at any other appropriate place.

**308**

### **Portable Electrical Systems Equipment**

- (1) Only a heavy duty flexible electrical cable that is resistant to dampness and petroleum products shall be used on any portable electrical equipment.
- (2) A power cable shall be installed in a manner that protects it from abrasion, traffic, burns, cuts and other damage.
- (3) If multicore Tough Rubber-Sheathed (TRS) or Thermoplastic-Sheathed (TPS) cable is installed it shall, unless it is protected on account of its particular location, be guarded up to a height of at least 3m above the ground or floor.
- (4) A cable shall not lie unprotected on the ground or floor.
- (5) A damaged cable shall not be used.
- (6) Makeshift wiring, components or installations shall not be used.



(7) The voltage of a hand-held light or tool shall not exceed 250 volts.

(8) An electrically operated hand-held tool shall be tested and examined at regular intervals by a licensed electrical worker, and any defect shall be immediately corrected.

(9) A portable machine or apparatus and associated cable operating at a voltage which exceeds extra-low voltage shall be protected by an earth leakage current protection device of the instantaneous type set to operate at a value not exceeding 30 milliamperes.

(10) When using a portable earth leakage current protection device a push-button test is to be carried out by the user immediately after connection to a socket outlet, and every day in use.

**309**

### **Earthing and Lightning Protection**

(1) The structure of a permanent facility for handling flammable liquids shall be protected against lightning in accordance with AS 1768, or other code of practice acceptable to the Director.

(2) The structure of a drilling rig need not be so protected against lightning if it is earthed so that the maximum resistance to earth does not exceed 10 ohms.

**310**

### **Control of Static Electricity**

(1) The metal parts of a drilling rig shall be earthed for the safe removal of static electricity so that the maximum resistance to earth does not exceed 10 ohms.

(2) The well casing may be used for earthing if it is electrically connected to all tools and other equipment used in the particular operation.

(3) Any metallic part of a container of flammable liquid shall be safely earthed to remove static electricity, but shall not be connected so as to form part of the earth circuit.

(4) If flammable liquids or finely divided flammable or explosive materials are transferred from one container to another, the containers shall be in firm contact with each other or be continuously electrically bonded so as to prevent the accumulation of static charges.

(5) Where a tank, mixer or processing vessel holds flammable liquids or flammable or explosive materials, it shall be electrically bonded and earthed.

(6) Electrical welding return conductors shall be connected directly to the equipment being welded.

**311 Maintenance, Repairs or Alterations**

(1) Maintenance, repairs or alterations shall not be carried out on a conductor or apparatus while it is live.

(2) A switch that is opened to permit work to be carried out on lines or equipment shall be tagged and locked in the isolated position.

(3) Except for a hand-held light or tool, electrical equipment shall be disconnected from the power supply before it is moved.

(4) The rewiring and replacement of a fuse may be carried out by a person authorized to do that work but shall then be checked as soon as possible by a licensed electrical worker.

**312 Remote Motors**

A motor which is operated remotely or in such a way that it cannot be seen from its switch gear or control gear shall be provided with facilities for locking it in an isolated position and shall be wired so that the motor shall not start until released from the point where it was stopped.

**313 Control Equipment**

Any switch gear or starting equipment for a motor shall be fitted with an isolating switch interlocked with the cover of the equipment so as to prevent the opening or removal of the cover while the equipment is live or the switch is in the closed position.

**314 Work on High Voltage Apparatus**

Before work is commenced on high-voltage apparatus, it shall be -

- (a) covered by a properly signed access permit;
- (b) effectively isolated from the source of supply;
- (c) tested to ensure that it is not live; and
- (d) earthed.

**Inspection of Electrical Equipment**

- (1) An electrician shall -
  - (a) test the effectiveness of the earthing system, the continuity of the earthing conductors and the condition of any electrical insulation; and
  - (b) examine, or test, electrical apparatus and cable that has been newly connected, or dismantled and reconnected in a new position.
- (2) Sub-Clauses (1)(a) and (b) 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 Sub-Clause (1) shall 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 six months; and
  - (d) in the case of 30mA residual current device, at intervals not exceeding three months.
- (4) The results of a test or examination shall be recorded by the electrician in a log book, and shall be countersigned by the person supervising the work on the particular site.
- (5) The Director may require that other, or additional, tests or examinations be carried out.

## PART IV

### EXPLOSIVES

#### **401 Application of Dangerous Goods Act**

All operations involving the use of explosive material shall comply with the relevant sections of the Dangerous Goods Act and its associated regulations.

#### **402 Safety of Personnel**

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

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

#### **403 Operations During Darkness**

(1) A down-hole perforating operation shall only be commenced during daylight hours.

(2) A perforating tool shall not be loaded on the well site during the hours of darkness unless adequate lighting is available.

(3) All other operations, involving explosives, shall only be conducted during daylight hours, unless otherwise approved.

#### **404 Shut-down of Electrical Generating Plant**

Insofar as may be appropriate, the generating plant shall 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 30 metres below ground level. Where an approved operation is being carried out during the hours of darkness adequate battery powered or portable generator powered lighting must be provided to permit the safe handling of the explosive tool.

#### **405 Earth-return Electrical Systems**

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

406

### **Adverse Weather Conditions**

- (1) Work involving the use of explosives shall not be undertaken during a thunderstorm, dust storm, high winds or heavy rains.
- (2) If a thunderstorm threatens while explosives are being loaded into a hole, or after loading, the operation shall immediately stop, and the following steps shall be immediately taken -
  - (a) the hole shall 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 shall be immediately returned to their respective magazines or containers; and
  - (c) portable magazines and containers shall be moved to a distance of at least 250 metres from the nearest established road, railway or building.
- (3) Any person who is not required to carry out work under Sub-Clause (2) shall immediately proceed to a safe place.

407

### **Safety on the Rig Floor**

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

408

### **Earthing**

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, shall be efficiently earthed; and
- (b) electrical bonding shall be established between the equipment and the wellhead.

409

### **Use of Secure Containers**

- (1) Any explosives that are taken out of a magazine shall be kept in a strong and secure container made entirely of wood, fibre, bronze, brass, rubber or other minimum-sparking material.
- (2) A separate container shall be used for carrying detonators.

(3) Explosives shall be taken directly to the place where they are to be used.

**410 Surplus Explosives**

A person shall not draw from a magazine more explosives than required for the particular day, and in the event of a surplus the explosives shall be returned to the magazine on the same day.

**411 Short-circuiting of Detonators and Firing Cables**

(1) Where shots are to be fired electrically, the detonator lead wires shall 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 shall also remain short-circuited while the leads from the detonators or the extension are being connected to each other and to the firing cable.

(3) The short-circuit in the firing cable shall 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 shall immediately be removed from the firing switch and short-circuited.

**412 Portable Radio Transmitters**

The power switch on a portable radio transmitter shall 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 AS 2187.

## PART V

### DRILLING AND WORKOVER

#### Division 1 - General Requirements

501

#### **Approval to Drill**

(1) Operations to drill a new exploration, development or appraisal well or workover an existing well shall not be commenced without prior approval.

(2) An application under Sub-Clause (1) shall be made not less than one month (or 3 months if an environmentally sensitive area is involved), or such other period as may be approved, prior to the commencement of operations and shall include -

- (a) proposed well name and number;
- (b) location, elevation and co-ordinates of the well site;
- (c) programmed depth;
- (d) estimated spud-in date;
- (e) estimated drilling time;
- (f) name and address of drilling contractor;
- (g) type of rig and blow-out prevention equipment, including description of equipment and method of operation;
- (h) names and addresses of other contractors involved in the operations and the nature of the services they will perform;
- (i) detail of the drilling program, including particulars of casing program (with designs safety factors for burst, collapse and tension), complete casing cementation program, drilling fluid and formation evaluation procedures (cuttings and fluid sampling, coring, and wireline and mud logging);
- (j) name of person responsible for communications with the Director;
- (k) proposed well path;
- (l) drilling procedures manual;

- (m) geological prognosis which includes well objectives and, for exploration wells, play definition (source, seal, reservoir, trap configurations) accompanied by a time or depth maps of near target horizon(s) and seismic sections where possible;
  - (n) pollution control measures;
  - (o) a statement of proposed environmental protection and rehabilitation measures;
  - (p) evidence of adequate comprehensive insurance, including, but not limited to, public liability, loss of well control (including blowouts), relief well drilling, containment and clean-up; and
  - (q) such other information as the Director requests.
- (3) The drilling program shall, in the case of an exploration well in a permit area, be accompanied by a current plan showing the existing land tenure i.e., reserves, private property, etc. in relation to the proposed drill site and access road and shall make reference to any other wells, public utilities or any other structure within 150 metres of the proposed well location.
- (4) Any information not available at the time of initial application must be forwarded no later than one month prior to the expected spud date.
- (5) An approved program shall not be varied without approval.

**502**

### **Approval of Drilling Equipment**

A person shall not commence or continue to use drilling and associated equipment unless -

- (1) the drilling and associated equipment has been inspected by an Inspector prior to the commencement of drilling programs;
- (2) operating manuals covering emergency procedures and the drilling and associated equipment have been approved; and
- (3) an Inspector is satisfied that the drilling and associated equipment is in good condition, compatible with that detailed in the operating manual and capable of being operated safely.

**503**

### **Equipment to Conform to Certain Standards**

Materials and equipment used in drilling and workover operations shall conform to the standards listed below, so as to safely withstand the conditions likely to be encountered -



- (a) derricks and masts API Std 4A, API Std 4D, or API Std 4E;
- (b) rotary drilling equipment API Spec 7;
- (c) well casing, tubing and drill pipe, API Spec 5CT;
- (d) wellhead and Christmas tree equipment API Spec 6A;
- (e) blowout preventors, drilling spools and adapters, API Spec 16A;
- (f) hoisting equipment API Spec 8A;
- (g) wire rope API Spec 9A and AS 1656; and
- (h) cement API Spec 10.

**504 Location Survey**

As soon as practicable after the spudding of a well, its location shall be determined to within an accuracy of 5 metres, or as required by the Director.

**505 Prohibited Drilling Areas**

A well shall not be drilled so that any part of it is less than 300 metres from a title boundary, except in accordance with a consent in writing of the Director.

**506 Casing**

(1) The design and placement of casing strings shall take into account known or predicted formation strength, known or predicted formation pore fluid pressures and programmed drilling fluid densities, and the maximum performance properties used in the design of casing strings shall be those indicated as minimum performance properties in API Bull 5C2.

(2) Casing strings shall be run and cemented at the approximate setting depths specified in the drilling program and any significant variations to the prescribed setting depths shall be notified to the Director prior to running casing.

(3) All casing strings and liner strings shall be capable of withstanding all anticipated collapse and burst pressures, tensile loadings, temperatures, and environments likely to be encountered.

- (4) All casing strings, other than liner strings shall extend to the wellhead.
- (5) Casing recovered from a well shall not be re-used in another well unless inspection in accordance with API RP 5CI establishes compliance with Sub-Clause (3).
- (6) A conductor casing string shall be installed to protect a well and equipment against surface formation instability and to enable the circulation of drilling fluid from the well before surface casing is installed.
- (7) Surface casing shall be set at least 25m into a competent formation and, unless otherwise approved, to a depth of at least -
- (a) 200 metres; and
  - (b) 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 2,500 metres, plus 5 per cent of the incremental depth of uncased hole beyond 2,500 metres; or
  - (c) 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.
- (8) The design of the surface casing string shall take into account the support of other casing strings and the BOP stack.
- (9) Where evidence indicates the possibility of above normal formation pore pressure, the surface casing design shall be considered on a well by well basis.
- (10) Consideration shall be given to setting an intermediate casing string where -
- (a) abnormal pressure, lost circulation or unstable zones are known or expected; or
  - (b) artesian water, high mud weights or extensive drilling time may lead to down-hole problems.
- (11) When a liner string is installed there shall be an overlap of at least 30 metres between the top of the liner string and the shoe of the next larger casing string previously run.

- (12) After cementing, all casing strings, except the conductor casing string, shall be pressure tested to an approved pressure before drilling out of the casing shoe or, in the case of production casing string, before proceeding with operations to complete or test a well, and such pressure test shall be held for as long as is necessary to ascertain that there is no continuous pressure drop and the result recorded in the driller's log.
- (13) Drilling operations or operations to complete or test a well shall not commence until a satisfactory pressure test pursuant to Sub-Clause (12) has been obtained.

507

### **Cementing of Casing**

- (1) Unless otherwise approved conductor casing strings (other than those placed by jetting or driving) shall be cemented with sufficient cement to fill the annular space between the casing string and the wall of the hole from the shoe to surface.
- (2) Surface casing strings shall be cemented with sufficient cement to fill the annular space between the casing string and the hole to a height of at least 450 metres above the shoe of the casing string, or to the surface if such casing string is less than 450 metres in length.
- (3) Intermediate and production casing strings and liner strings shall be cemented with sufficient cement to fill the annular space between the casing string and the wall of the hole or next outer casing string as follows -
- (a) from each cementing point (including the casing shoe) to a height of at least 150 metres above the cementing point;
  - (b) to a height of at least 100 metres above any zone not previously cased containing fluid hydrocarbons; and
  - (c) additionally, in the case of a liner string which is used as an intermediate or production casing string, the overlap between the liner string and the next larger casing string previously set shall be cemented to fill at least 30 metres measured length of annular space between the liner string and the next larger casing string, unless provision is made for the overlap to be sealed in some other effective manner or unless otherwise approved.
- (4) All casing string cementations shall be carried out in accordance with good oil field practice and the details of the cementing operations shall be recorded in the driller's log. If there is any reason to suspect a faulty cementing operation, the Director shall be notified.

(5) After the cementing of casing strings, drilling shall not be commenced until a time lapse of -

(a) 24 hours; or

(b) 8 hours under pressure for the surface casing string and 10 hours under pressure for all other casing strings.

(6) For the purpose of Sub-Clause (5)(b) the cement is considered to be under pressure if, during the time referred to, the cement is restrained from movement by the use of float valves or other approved equipment.

(7) If the cementing requirements of this Clause have not been achieved by primary cementing operations, endeavours shall be made to meet those requirements by recementing or by remedial cementing, unless otherwise approved.

**508**

### **Blow-out Prevention Control**

(1) Blow-out preventers and related well control equipment shall be installed, operated, maintained and tested generally in accordance with API RP 53 and shall be adequate to control expected pressures.

(2) Unless otherwise approved, prior to drilling below the conductor casing string in exploration wells, or in development or appraisal wells in those areas having known shallow gas accumulations, a diverter system incorporating a pipeline of adequate diameter with control valves shall be installed so as to safely divert hydrocarbons and other fluids in the event of pressures occurring below the shoe of the conductor string which may fracture the formation.

(3) Prior to drilling below the surface casing string the blow-out prevention equipment shall include a minimum of -

(a) three remotely controlled, hydraulically operated blow-out preventers with a working pressure that exceeds the maximum anticipated surface pressure, including one equipped with pipe rams, one with blind rams and one of the annular type; all ram type blow-out preventers shall be equipped with extension hand wheels or hydraulic locks;

(b) a drilling spool with at least two side outlets for the attachment of choke and kill lines, if side outlets are not provided in the blow-out preventer body. The side outlets shall be connected to pipelines of at least the same pressure rating as the blow-out preventer

assembly. One of the pipelines with a minimum internal diameter of 50 mm shall be available for the purpose of killing the well. The other pipeline with a minimum internal diameter of 75mm shall be available for bleeding well fluid to the choke manifold.

- (c) the choke manifold containing not less than two adjustable chokes, one of which shall be hydraulically controlled, connected to the choke line referred to in paragraph (b);
- (d) a kill pump facility connected to the kill line referred to in paragraph (b); and
- (e) a fill-up line.

(4) An inside blow-out preventer assembly (back pressure valve) and a full opening drill string safety valve in the open position shall be kept on the rig floor at all times whilst operations are in progress, with suitable crossover substitutes to enable installation on all drill pipe, drill collars and tubing in use.

(5) A kelly cock shall be installed immediately below the swivel and another at the bottom of the kelly, of such design that it can be run through the blow-out preventers.

(6) During operations there shall be a control panel for operating blow-out preventers and choke manifolds, located at such a distance from the drill floor as to ensure safe and ready access in an emergency.

(7) Each choke manifold shall have pressure gauges, clearly visible to the choke operator when standing in his normal operating position for either the remotely or hand adjustable chokes, which indicate -

- (a) the drill pipe pressure at the drill floor; and
- (b) the casing string/drill string annulus pressure at a known point upstream of the choke.

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

(9) The Director must be notified:

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

(10) A notification under Sub-Clause (9)(a) above must include the reason for the removal of the equipment and the steps taken to make the well safe.

**509**

### **Pressure Testing Blow-out Prevention Equipment**

(1) After setting the blow-out preventer stack the pipe rams, the wellhead connection, and the choke and kill lines shall be tested to the maximum anticipated surface pressure, or such other pressure as may be approved and the annular type blow-out preventers shall be tested to 70% of their rated pressure or 70% of the test pressure for the pipe rams, whichever is less -

- (i) when installed;
- (ii) before drilling out of each casing string;
- (iii) not less than weekly whilst drilling;
- (iv) following repairs that require disconnecting a pressure seal in the assembly; and
- (v) before perforating or production testing, unless a valid pressure test has occurred in the past 48 hours.

(2) The blind rams shall be function-tested at the times stipulated in Sub-Clause (1) provided that, after installing each casing string, they shall be pressure tested to a pressure not less than 70% of the burst pressure of the casing string just installed, or to their working pressure, or as provided in Sub-Clause (1), whichever is the least.

(3) The blow-out preventers shall be function-tested on each round trip but not more frequently than once per day with the exception of the annular type blow-out preventers where a weekly function test is required.

(4) In the event that a test indicates that equipment is not operating correctly, operations shall be discontinued until the deficiencies have been corrected and the equipment subjected to another test.

(5) The results of each blow-out preventer test shall be recorded in the driller's log.

**510**

### **Mud Monitoring System**

Unless otherwise approved the following mud system monitoring equipment shall be installed and used during all drilling operations after setting and cementing the conductor casing string -

- (a) a recording mud pit level indicator to determine mud pit volume gains and losses, including a visual and audio warning device;
- (b) a mud volume measuring device for accurately determining the mud volumes required to fill the hole on trips;
- (c) a mud return or full hole indicator to determine when returns have been obtained or when they occur unintentionally, as well as to determine that returns essentially equal the pump discharge rate;
- (d) a pump stroke counter;
- (e) a gas separator, gas knockout pot or a mud degasser; and
- (f) a mud gas monitoring device to determine the concentration of gas in the drilling mud.

**511**

**Penetration Rate and Formation Pressure Monitoring**

A drilling rig, while engaged in drilling operations, must be fitted with equipment that provides a continuous recording of the penetration rate and can be used as a guide to warn against possible and approaching formation pressure increases.

**512**

**Accumulators**

(1) Accumulators shall be located a minimum of 15 metres away from the rig floor and, without accumulator pump assistance, shall have sufficient capacity at all times to -

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

(2) Accumulator pumps shall be capable of re-building fluid pressure in the accumulators within a period of three minutes to a sufficiently high level to -

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

(3) Accumulators shall be connected to the blow-out preventers with lines of working pressure at least equal to the working pressure of the accumulator and any lines located under the substructure shall be of steel construction unless completely sheathed with adequate fire resistant sleeving.

(4) Accumulator pumps shall have two independent sources of power.

## **513**

### **Blow-out Prevention Drills**

(1) Blow-out prevention drills shall be conducted weekly for each drilling crew to ensure that all equipment is operating and that crews are properly trained to carry out emergency duties.

(2) All blow-out prevention drills and response times shall be recorded in the driller's log.

(3) A notice on the rig floor, shall provide details of the well control procedures proposed to be followed in the event that indication of a well kick is observed and all drilling crews shall be trained in those procedures.

(4) All on-site personnel holding the position of driller (including any person who may temporarily stand in for the driller) or more senior shall attend, at least once every 24 months, an accredited well-control school or refresher course in well-control and obtain a certificate of proficiency.

## **514**

### **Formation Integrity Testing**

(1) A formation integrity test shall be conducted after drilling out the casing shoe of surface and intermediate casing strings to establish that cementation and formation strength at the shoe are adequate to sustain the maximum anticipated pressures which may be imposed during subsequent drilling operations.

(2) Where a test requires that the approved drilling and casing program be amended, any such amendments shall be submitted to the Director for approval.

(3) Where formations are encountered below a casing shoe which require the use of drilling fluid densities not anticipated in the approved drilling program and which could result in excessive pressures being imposed at the casing shoe an additional formation integrity test shall be performed and, if the result differs from that performed at the casing shoe, the Director shall be notified forthwith and the casing program amended if necessary.



(4) All formation integrity test results shall be recorded in the driller's log.

**515                   Drilling Fluid**

(1) The characteristics and use of the drilling fluid shall provide adequate control of any sub-surface pressures likely to be encountered.

(2) Wherever possible the well shall be maintained full of such drilling fluid.

(3) Sufficient reserves of drilling fluid and supplies of drilling fluid materials shall be available at the well site for immediate use to comply with Sub-Clauses (1) and (2).

(4) Tests consistent with API RP 13B shall be performed on a regular basis while drilling and the results recorded in the driller's log.

**516                   Deviation Surveys**

(1) Unless otherwise approved, deviation surveys shall be taken at intervals of not more than 200 metres to ascertain the deviation of a well from vertical.

(2) A well shall not be directionally drilled without approval, except for a short distance to straighten a hole, sidetrack junk or correct other mechanical difficulties.

**517                   Conversion of Wells into Water Wells**

(1) When, for the purpose of drilling a well a notice of intention to enter land is obtained, or a right of entry from an owner/occupier of land is given, the Operator shall raise with the owner/occupier the possibility of converting the well into a water well should the well not be capable of commercial petroleum production.

(2) The Operator shall furnish the Director with copies of any correspondence entered into under Sub-Clause (1).

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

**518                   Oil or Gas Lost or Used During Repair Operations**

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 shall be reported to the Director as soon as practicable after the relevant event.

519

### **Evaluation of an Occurrence of Petroleum**

If the Director considers that an Operator is not adequately evaluating a potential occurrence of petroleum, he may require the Operator to carry out such coring, logging or testing operations as he thinks reasonable in the circumstances.

520

### **Core and Cutting Samples**

(1) Where cuttings are recovered from a well a set of representative samples, each a minimum of 100g dry weight where practicable, shall be washed, dried in an approved manner and placed in suitable plastic bags or plastic bottles (obtainable from the Northern Territory Department of Business, Industry and Resource Development, Core Library) that are properly labelled for identification and lodged as directed by the Director.

(2) Where whole cores are recovered they shall where practicable be slabbed vertically and at least one vertical quarter of the core shall be placed in suitable labelled container and lodged as in Sub-Clause (1).

(3) Full diameter core samples may, where approved, be retained for special studies provided that -

- (a) they are retained in Australia unless otherwise approved and any skeletal material is returned to Australia within 12 months of the approval
- (b) care is taken to protect them from unnecessary damage; and
- (c) all residues are lodged with the Director on completion of the studies.

(4) Side-wall cores shall not be sent out of Australia unless otherwise approved, and all residues remaining after any studies on the cores shall be preserved and lodged with the Director on their completion.

(5) In relation to any samples retained overseas for further analysis, an annual report on progress shall be sent to the Director.

521

### **Reports on Analysis of Core and Cuttings**

(1) Where an investigation, analysis or study is conducted on cuttings or cores, a copy of the report of the work and its conclusions shall be sent to the Director as soon as practicable after the completion of the work.

(2) Palynological, palaeontological and petrological slides prepared from cuttings or cores shall be properly stored and lodged with the Director when requested or in any event prior to the surrender, expiry or cancellation that part of the title to which the material relates.

**522**

### **Age Dating of Samples**

The Operator shall take all reasonable steps to ascertain, by palaeontological, radiometric or other suitable means, the ages of all rocks penetrated by a well.

**523**

### **Fluid Samples**

(1) All formation fluid recovered from formation tests or non-routine production tests shall, as far as practicable, be sampled in accordance with API RP 44.

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

(3) Where available, a 1 litre sample of liquid hydrocarbons or other fluid from formation or production tests shall be sent to the Director upon request.

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

**524**

### **Well Evaluation Logs**

(1) Before a well is cased (other than with surface casing), completed, suspended or abandoned, an approved suite of logs shall be run and recorded.

(2) The suite shall at least be sufficient to provide a proper determination of -

- (a) formation porosity;
- (b) formation fluid saturations;
- (c) stratigraphic correlation with surrounding wells; and
- (d) if inadequate control exists in the vicinity of the well, velocity control.

(3) The following shall be furnished to the Director -

- (a) a copy of each log run, which shall be forwarded as soon as possible after it is recorded;

- (b) one paper print and one stable base transparency of each log (which shall be furnished as soon as practicable after they are made);
- (c) one digital copy of all logs on magnetic tape, in log information standard (LIS) format (or other medium and format acceptable to the Director), shall be forwarded as soon as practicable after they become available; and
- (d) one paper print and one stable base transparency of the mud log.

**525**

### **Protection of Aquifers**

All reasonable steps shall be taken during well or production operations to prevent communication between, leakage from or the pollution of aquifers that serve, or could serve, any useful purpose.

**526**

### **Production or Drill Stem Tests**

- (1) A person shall not conduct a production or drill stem test in an exploration, development or an appraisal well not yet producing without approval.
- (2) An application for approval to conduct a production or drill stem test shall be accompanied by particulars of -
  - (a) the date and time of test;
  - (b) the equipment proposed to be used for the test;
  - (c) the proposed testing program;
  - (d) the proposed test intervals;
  - (e) the proposed duration;
  - (f) the maximum quantity of petroleum or water proposed to be produced; and
  - (g) the proposed method of disposal of the petroleum, water or gas produced.
- (3) At least 24 hours notice of intention to conduct the test shall be given to an Inspector unless otherwise approved to enable an Inspector to be present during the test.

- (4) The following conditions shall pertain to drill-stem tests or production tests.
- (a) When formation testing is to be performed in the vicinity of an inhabited area, all reasonable steps shall be taken to warn persons who could be affected, and the tests shall be conducted in a manner that minimizes the risk of injury or damage to property;
  - (b) All personnel shall be familiar with the relevant emergency procedures.
  - (c) All flowlines, valves and equipment used in a formation test shall have a rated working pressure in excess of all anticipated pressures and, where appropriate, shall be tested prior to initial use at each well to at least those anticipated pressures.
  - (d) Open hole formation tests shall not be opened for flow during the hours of darkness except with the prior approval of the Director.
  - (e) Subject to Sub-Clause (f), if formation fluids are produced into the test string, they shall be reverse circulated from the test string before it is pulled from the hole.
  - (f) In a cased hole, formation fluids in the test string may be displaced back into the formation from which they were produced.
  - (g) 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.
  - (h) During formation testing, all motors, engines and lights that are not required for the operation shall be shut off.
  - (i) During formation testing, the annular space of the well shall be kept full of drilling fluid of a density adequate to control formation pressure;
  - (j) Fluids brought to the surface during formation testing shall be safely disposed of through an independent test manifold and choke.
  - (k) Any choke equipment that forms part of the blow-out prevention equipment shall not be used for flow control during a formation test.

- (l) If swivel joints or flexible hoses are used in the system during formation testing, they shall be equipped with wire rope or chain safety lines capable of containing any movement or whipping of the pipe or hose in the event of failure.
  - (m) All test strings shall be equipped with the means to reverse circulate out their contents.
  - (n) No swabbing or acidizing shall be performed during the hours of darkness.
- (5) If a drillstem test results in the discovery of a new pool of petroleum, the Operator shall notify the Director as soon as practicable after the discovery is made and furnish -
- (a) a copy of the relevant operational reports;
  - (b) a legible copy of the pressure recorder chart for each test taken on the well; and
  - (c) an interpretation of those tests.

**527**

**Flammable Vapours**

All vessels and equipment from which flammable vapours may issue shall be safely vented to atmosphere, and any significant volume of gas that is vented shall be burnt through a flare system in accordance with this Schedule.

**528**

**Approval to Abandon or Suspend a Well**

- (1) A well shall not be abandoned or suspended without prior approval, except as provided for in Sub-Clause (4).
- (2) Subject to Sub-Clause (4), while drilling operations are being undertaken a well shall not be left in a condition which, in the opinion of the person-in-charge or the Director, is unsafe. Prior to the cessation of drilling operations, even temporarily, a well shall be made safe in accordance with good oilfield practice.
- (3) Subject to Sub-Clause (4), where casing is being installed, if a well encounters or has encountered -
  - (a) hydrocarbons;
  - (b) abnormally pressured water;
  - (c) unstable coals or shales; or

- (d) lost returns;

the drilling operations shall be continued to the next scheduled casing point at which point the hole will be logged, cased and secured at the surface.

(4) In the event of an emergency or adverse weather conditions requiring, in the opinion of the person-in-charge or the Director, cessation of drilling operations, the well shall be made safe in accordance with good oilfield practice.

(5) An application for approval to abandon or suspend a well shall give particulars of:

- (a) the reason for abandonment or suspension;
- (b) the proposed abandonment or suspension program including the method by which the well will be made safe; and
- (c) such further information as the Director may require.

**529**

### **Abandonment of a Well**

Well abandonment shall comply with the following.

(1) In uncased hole, cement plugs shall be placed such as to provide a minimum of 30 metres of cement above and a minimum of 30 metres of cement below any significant oil, gas or fresh water zones.

(2) Where there is open hole immediately below the casing string, there shall be placed in that casing string -

- (a) a cement plug placed by displacement method so as to extend at least 30 metres above and at least 30 metres below the casing shoe; or
- (b) a cement retainer with effective back pressure control set at least 10 metres, but not more than 30 metres, above the casing shoe with a cement plug calculated to extend at least 30 metres below the casing shoe and at least 15m above the retainer; or
- (c) where lost circulation conditions exist or are anticipated, a permanent type bridge plug set within 45 metres above the casing shoe with at least 15m of cement on top of the bridge plug.

(3) If the casing string is cut and recovered, a cement plug shall be placed to extend at least 30 metres above and at least 30 metres below the cut end of the casing string, and a retainer may be used in setting the required plug.

(4) Where the casing string has been perforated-

(a) a cement plug shall be placed opposite the perforations to extend from at least 30 metres below to 30 metres above the perforated interval; or

(b) the perforated interval may be plugged by means of a cement retainer set in the casing string no more than 45m above the top of the perforated interval with a cement plug extending at least 15m above the retainer, provided the perforated interval is isolated from open hole below; or

(c) subject to Sub-Clause (b) where a succession of retainers is used to isolate a series of perforated test intervals, only the topmost retainer need have a minimum of 15m of cement plug placed above it.

(5) In a cased hole containing a liner string or strings, a cement plug, of at least 30 metres height, shall be placed immediately above each liner hanger.

(6) A surface cement plug extending at least 15m below the surface shall be placed in the innermost string of casing that extends to the surface.

(7) Any annular space that extends to the surface, and which is open to drilled hole, shall be plugged with sufficient cement to fill at least 30 metres of the annular space.

(8) The location and integrity of cement plugs placed in accordance with Sub-Clauses (2), (3), (4) and (5) shall be verified by the application of weight, or other methods as approved.

(9) Any intervals of cased hole between cement plugs shall be filled with fluid that is of an appropriate density and suitably inhibited to prevent corrosion of the casing.

(10) Blow-out preventers shall not be removed until all plugs required to isolate the open hole have been set and their location and integrity satisfactorily determined.

(11) No casing may be recovered if its recovery would expose any abnormal pressure, lost circulation, petroleum or water zone.



(12) At least two metres above ground level, a steel plate shall be installed, welded to a suitable steel post in turn welded to the casing head or outermost casing stub, with well name, number and total depth bead-welded to it.

**530**

### **Well Completion**

(1) The surface and subsurface equipment of a completed well shall (where applicable) be arranged to permit the 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 shall be fitted with sampling connections.

(3) The Operator shall, on completion and any recompletion of a well, keep and make 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 and flow line connection shall be pressure tested.

**531**

### **Disposal of Produced Oil and Gas**

(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, shall be flowed through an appropriate manifold and properly staked temporary flow line to a storage tank or flare.

(2) Clean up operations and tests that use temporary well site facilities shall be commenced during daylight hours.

(3) If petroleum is flowed to a flare it shall be kept, as far as possible, continuously alight.

**532**

### **Restoration of Site**

As far as possible a well site area shall be restored to its former condition and if any part of a wellhead is left above ground level, the well shall be adequately fenced. Mousehole and rathole shall be plugged at surface.

## **Division 2 - Reporting and Data Submission**

**533**

### **Discovery of Petroleum and Estimate of In-Place Petroleum**

- (1) In addition to fulfilling the requirements of the Act with respect to reporting a discovery of petroleum, the results of the evaluation of the discovery including preliminary estimates of petroleum in-place shall be conveyed in writing to the Director within 3 months of the date of discovery, unless otherwise approved.
- (2) Each year, the Operator shall provide the Director with his current estimate of the petroleum reserves in a petroleum pool.
- (3) An estimate referred to in Sub-Clause (2) shall be in an approved form accompanied by any specific reports produced during the period and shall specify -
  - (a) the location of the petroleum pool;
  - (b) the quantity of in-place petroleum in the pool at the 50% and 90% probability levels; and
  - (c) the data upon which the estimate is based.
- (4) When a field study resulting in a revised estimate of in-place petroleum has been carried out, a report of the study and the revised estimate shall be sent to the Director.

**534**

### **Daily Report of Drilling or Workover Operations**

- (1) Each day before midday a daily report of the drilling or workover operations for the previous 24 hours shall be sent to the Director.
- (2) The daily report shall contain -
  - (a) the name of the well;
  - (b) the drilled depth;
  - (c) the operations carried out;
  - (d) the lithology of formations penetrated and the interpreted depth of any marker horizons;
  - (e) any indications of petroleum;

- (f) results of surveys made in the well bore; and
- (g) estimated daily and cumulative well costs.

**535 Report on Modification, Abandonment or Suspension of Well**

A report providing details of any repair, modification, recompletion, production test, abandonment or suspension of a well shall as soon as practicable be sent to the Director.

**536 Well Completion Report**

(1) Where a well has been plugged and abandoned, suspended or completed a report shall be furnished to the Director within six months of rig release.

(2) A report relating to the drilling of a well shall include, but not necessarily be limited to, the following -

**General Data**

- (a) The name of the well.
- (b) The elevation of the ground and kelly bushing onshore, or elevation of the kelly bushing and water depth offshore.
- (c) The well location.
- (d) In the case of a well that has deviated from an approximately vertical path -
  - (i) the surveyed path of the well;
  - (ii) the coordinates of the bottom hole location; and
  - (iii) in the case of a potential producer, the coordinates at the intersection of the reservoir horizon.
- (e) The drilling rig used.
- (f) The spud date, date of reaching total depth and date of rig release.
- (g) The along hole and the true vertical depths reached below the kelly bushings.

- (h) A statement whether the well has been -
  - (i) completed as a producer;
  - (ii) suspended as a potential producer; or
  - (iii) abandoned.
- (i) The depth of any perforations.

### **Drilling**

- (j) Particulars of the equipment installed in or on the well.
- (k) Particulars of the casing and equipment installed in or on the well complete with schematics showing major dimensions.
- (l) Particulars of all deviation surveys.
- (m) Particulars of cementing operations carried out.
- (n) Bit records.
- (o) Particulars of drilling fluids used.

### **Formation Evaluation**

- (p) Depths and types of all cores (including sidewall cores), cuttings, well evaluation logs (including measurement-while-drilling logs, pressure detection logs and mud logs) and fluid samples.
- (q) Particulars of any hydrocarbon indications.
- (r) Particulars of the operation and results including full raw pressure-time listings for all formation fluid sample tests and production tests carried out.

### **Geology**

- (s) The along hole and true vertical depths of seismic marker and reservoir horizons.
- (t) Geological interpretations of the well data including, but not limited to, for exploration wells -
  - (i) lithology and stratigraphy;

- (ii) reservoir quality;
- (iii) source rock quality;
- (iv) hydrocarbon indications; and
- (v) trap integrity;

and for development or appraisal wells details of changes to the current reservoir model.

- (u) For exploration wells a discussion of the relevance of the well data to the evaluation of the hydrocarbon potential of the area.
- (v) For development or appraisal wells, the implications for future field management.

### **Appendices**

- (w) Reports of technical studies on velocity surveys, logs, samples, cores and sidewall cores (including petrophysical analysis, palaeontology, reservoir characteristics, fluid saturations, relative permeability, capillary pressure, fluid analysis and geochemical analysis). Where for any reason these are not included in the final well report or have not previously been submitted, they must be furnished to the Director as soon as they become available.
- (x) One stable base transparency and one paper print of -
  - (i) a composite well log including, where appropriate, wireline logs, sampling and testing details, interpreted formation tops and lithology of intervals penetrated;
  - (ii) the enclosures in the velocity survey report;
  - (iii) a mud log; and
  - (iv) a litholog, if prepared.
- (y) A well index sheet.
- (z) Prints of revised structure maps and appropriate interpreted seismic sections illustrating the post-drill structural and stratigraphic interpretation of the well.

### **Division 3 - Special Services**

#### **537 Special Services**

- (1) Special services include 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) Equipment and operations for special services shall be in accordance with the applicable recommended practices set forth in API RP 54.

#### **538 Equipment**

- (1) Where a system of high pressure piping and swivel joints is used in well stimulation or similar operations, the swivel joints shall be secured with wire rope safety lines or chains and anchored at each end.
- (2) Where a system of high pressure piping and swivel joints is used in well stimulation or similar operations, the operation shall be carried out by remote control so as to minimise the requirement for a person to be in the area between the pump discharge and the wellhead.
- (3) Swivel joints that have lugs for hammer tightening shall not be used in a well servicing operation unless manufactured from steel.
- (4) Where a treating line is used during well servicing operations (other than during cementing operations), a check valve shall be fitted at the wellhead end of the treating line.
- (5) Where a check valve is fitted adjacent to the wellhead, a bleed-off valve shall be installed between the check valve and the wellhead.
- (6) Where materials potentially corrosive or harmful to the skin are in use, suitable eye wash and emergency shower facilities shall be available on site.

#### **539 Operations**

- (1) When liquid carbon dioxide or nitrogen is used for well stimulation or clean out, the controls for the valve that regulates the flow of the liquid shall be located on the side of the unit that is opposite to the pipe supplying the liquid to the well.
- (2) All piping, pumps, valves and fittings used in servicing operations shall be hydraulically pressure tested to not less than the maximum expected treating pressure, prior to the commencement of each servicing operation, and lines shall be adequately staked.

(3) Before pumping flammable fluids, the components of the system shall be bonded together to ensure that electrical continuity is established and maintained.

**540**

### **Swabbing**

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

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

(3) During swabbing operations produced fluids shall be piped directly to a production facility, flare pit or tank.

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

## PART VI

### PETROLEUM PRODUCTION

#### Division 1 - General Requirements

#### **601 Approval of Production Equipment and Safety Systems**

- (1) Production operations including operations for -
  - (a) the enhanced recovery or recycling of petroleum;
  - (b) the processing, storage or disposal of petroleum;
  - (c) the disposal of produced formation water; and
  - (d) the injection of petroleum or water into an underground formation;

but excluding a production test of a well, shall not be carried out unless the production equipment and safety systems have been approved.

(2) The installation or modification of production equipment and safety systems shall not be undertaken without approval.

(3) An application for approval to install or modify production equipment or safety systems shall be accompanied by descriptions, plans and drawings containing such details as the Director requires.

#### **602 Production Facilities**

A production facility shall be designed, manufactured, constructed, tested, operated, inspected and maintained in accordance with relevant Australian or API Standards or codes of practice, or to specifications and practices acceptable to the Director.

#### **603 Equipment to Comply with Certain Standards**

- (1) Wellhead equipment shall comply with API Spec 6A.
- (2) Pressure piping shall be designed, constructed, operated and maintained in accordance with ANSI/ASME B31.3.
- (3) Valves used in production equipment shall comply with API Spec 6D or API Std 600.
- (4) Pipe flanges and flanged fittings used in production equipment shall comply with ANSI/ASME B16.5 or API Std 605.



(5) All unfired pressure vessels shall be designed, constructed, tested and maintained in accordance with AS 1210.

(6) All pressure relief valves shall be designed, constructed, tested and installed in accordance with AS 1271, and shall be inspected and tested by a competent person at approved intervals and immediately after any indication of incorrect operation.

(7) All pipelines shall be designed, constructed and maintained in accordance with AS 2885 and AS 1978.

**604**

#### **Production Isolation Valves**

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

**605**

#### **Initial Production Tests**

(1) A new well completion shall be subjected to a production test to determine, as far as practicable -

- (a) initial reservoir pressure and temperature;
- (b) representative chemical analyses of fluids, as they exist in the reservoir;
- (c) the production capacity of the well; and
- (d) the formation characteristics, including reservoir fluid and rock properties, that exist at least 10 metres from the well bore.

(2) The production test of oil and gas completions shall be undertaken within 1 and 3 months respectively of being brought into production or after stabilized flow has been achieved.

(3) Unless valid data are in existence, where a completion is to be subjected to a major stimulation procedure (such as fracturing or acidizing), a test shall be carried out no more than six months before the stimulation and then, unless otherwise approved, a further test shall be carried out not more than three months after the completion of the stimulation.

(4) A test under Sub-Clause (3) shall determine as far as practicable any changes in fluid composition, production capacity and formation characteristics.

(5) To the extent that the equipment installed may permit, where a test is carried out under Sub-Clauses (1), (2) or (3), the closed in and flowing bottom hole pressures shall be measured.

(6) A detailed report on the results of a production test shall 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).

(7) Where an extended production test is approved a monthly report detailing pressure information, quantities of fluids produced and sales of gas or hydrocarbon liquids shall be submitted to the Director.

## **606**

### **Reservoir Management Plan**

(1) Subject to Sub-Clause (2) and Clause 607, a completion shall not be brought into production except in accordance with a reservoir management plan approved by the Director as consistent with maximum practical recovery of petroleum from the reservoir.

(2) Where, on the commencement of these requirements, a reservoir is already in production, a reservoir management plan for that reservoir shall be submitted for approval within one year after the commencement of these requirements.

(3) The Director may require that a reservoir management plan be revised from time to time.

## **607**

### **Evaluation of Potential for Retrograde Condensation**

(1) Subject to this requirement, before production from a gas, gas condensate or volatile oil reservoir is commenced, the Operator shall carry out well sampling and evaluate the possibility of retrograde condensation occurring in the reservoir.

(2) If it is not practicable to comply with Sub-Clause (1) before production is commenced, a program of work to carry out such an evaluation during the course of production shall be submitted for approval before production is commenced.

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

(4) Where, as a result of an evaluation under this requirement, there appears to be the possibility of retrograde condensation occurring in a

reservoir, a full pressure-volume-temperature study shall be carried out and submitted to the Director with the reservoir management plan.

**608 Rate of Recovery of Petroleum**

(1) The production policy for a reservoir shall be subject to annual approval unless production is the subject of a specific direction under the Act.

(2) An application under Sub-Clause (1) shall include proposed production policy and rate of recovery, past performance, predicted future performance and estimate of ultimate recovery from the reservoir.

(3) A periodic review of reservoir description, production policy and current reservoir performance shall be submitted at the request of the Director to demonstrate that a reservoir is being developed and produced in a manner consistent with sound reservoir management practices and compatible with optimum long-term recovery.

**609 Production Tests on Producing Wells**

A production test to estimate the rate of recovery of reservoir fluids shall be carried out on each producing well at least once each month unless the rate of recovery is measured continuously or unless otherwise approved.

**610 Gas Reservoir and Well Performance Monitoring**

(1) Bottom hole pressure build-up surveys shall be conducted on each gas completion at intervals of production not exceeding 10% of the currently estimated original proved plus probable recoverable reserves of the petroleum pool, in accordance with the approved reservoir management plan.

(2) Each producing gas completion shall be tested, at intervals not exceeding four years, to determine changes in flow characteristics.

(3) Well stream gas analysis shall be determined in conjunction with each test carried out under Sub-Clause (2), and at such other times as the Director may require.

(4) Each gas completion that is capable of production shall be tested to determine water production in a manner acceptable to the Director at intervals not exceeding six months.

(5) Gas completions shall be tested using a properly calibrated subsurface pressure gauge.

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

(7) The results of all gas completion tests shall be furnished to the Director within one month after the end of the month in which the tests are carried out.

(8) If a test indicates the production of formation water that had not been previously identified -

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

**611**

### **Oil Reservoir Pressure Build-up Surveys**

Unless otherwise approved, bottom hole pressure build-up surveys shall 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 proved plus probable recoverable reserves of the petroleum pool,

whichever is greater, in accordance with the approved reservoir management plan.

**612**

### **Production and Measurement of Produced Petroleum and Water**

(1) Petroleum including gaseous fluids and water shall not be recovered, flared, vented, disposed of or used in recovery operations unless approved equipment and procedures are used on each completion enabling both the quantity and composition of such fluids to be determined.

(2) Where the Director considers that inadequate production information is being obtained, the Director may require that additional testing be carried out.

(3) Petroleum shall not be recovered simultaneously from more than one reservoir in a well unless the quantity and composition of petroleum and water from each reservoir are determined.

(4) Petroleum recovered from different reservoirs and from more than one well shall not be commingled until the petroleum and water pass a point where the quantity and composition of petroleum and water from each well and from each reservoir are determined.

(5) A metering device used on or in an oil or gas well, gathering system, production facility or pumping station shall conform to a recognized standard.

(6) A meter or other device used to measure the production of oil, gas or water shall be proved and certified as to its accuracy in a manner, and at a frequency, acceptable to the Director.

### **613**

#### **Measurement of Production to Determine Royalties**

(1) The Director may, for the purposes of determining the royalty payable, select and seal a valve or meter installed at a well or production facility, or on a pipeline, tank or other receptacle that is used for the storage or transportation of oil, gas or other fluids.

(2) Except in an emergency, a seal fixed under Sub-Clause (1) shall not be tampered with or removed without written approval.

(3) Notice acceptable to the Director shall be given of an intention, for Royalty purposes, to prove a petroleum meter or to sample a petroleum stream.

### **614**

#### **Pressure Below Bubble Point**

An oil completion shall not be produced so that the sandface pressure is below the bubble point pressure except in accordance with an approved reservoir management plan or production policy.

### **615**

#### **Surface Connections**

Each well from which petroleum is recovered shall be provided with such surface connections and equipment as are necessary to prevent the injection of petroleum or water into the well from another well or from production equipment.

### **616**

#### **Segregation of Zones**

(1) An Operator shall, 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) at least once a year, or at such other intervals as the Director may require or approve.

(2) An Operator shall, within one month after completing a test referred to in Sub-Clause (1), furnish the Director with a report of the test which includes all relevant data and an analysis and interpretation of the results to prove or confirm segregation.

(3) If a test carried out or the production characteristics of a well indicate that segregation between completions is ineffective, the Director shall be immediately informed.

(4) All reasonable steps shall 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 that segregation between completions has been achieved, the Director may require that the well be shut-in or produced in a specified manner.

(6) An Operator shall give the Director at least three days notice of an intention to carry out a test for the purposes of this requirement.

**617**

#### **Minister May Give Directions in Relation to Enhanced Recovery**

In order to prevent undue waste, the Minister may, by written notice to the Operator require that -

- (a) an enhanced recovery scheme be used in a reservoir, or in a part of a reservoir, and may, for the purposes of that scheme, require that gas, water or some other substance be injected into the reservoir; and
- (b) any gas produced from a reservoir be injected into an underground reservoir for storage or other purposes.

**618**

#### **Waste or Contamination**

(1) Where, in the opinion of the Director, there is a reasonable possibility that oil, gas or water is being wasted or contaminated, the Operator shall carry out such tests and within such time as the Director may specify.

(2) If it is established that waste or contamination is occurring, the Operator shall take such steps as may be necessary or the Director may require to remedy or prevent it.

(3) The results of any test carried out under this requirement shall be furnished to the Director as soon as practicable after they are obtained by the Operator.

**619 Approval to Vent or Flare**

Except in an emergency, petroleum shall not be flared or vented without approval, either directly or as part of an approved operation or plan.

**620 Monitors and Control Mechanisms**

Approved monitors and control mechanisms shall be used to -

- (a) control the rate of recovery of petroleum or water from a well;
- (b) control the pressure in pressure vessels and associated piping so that the safe working pressures are not exceeded;
- (c) prevent the escape of petroleum;
- (d) shut down any artificial lift device and close in a well in the event of -
  - (i) a break in a pressure vessel or associated piping receiving or conveying petroleum or water from the well;
  - (ii) a failure of any control mechanism associated with the well which might result in the escape of petroleum or water or an unsafe condition; or
  - (iii) any fire or explosion in the vicinity of the well; and
- (e) activate fire control mechanisms in the event of the outbreak of fire or an explosion.

**621 Safety Devices**

Unless otherwise approved, a well that is capable of producing petroleum by natural flow shall be equipped with an approved safety device, which shall be -

- (a) designed so that it closes off automatically the flow of petroleum or water from the well if the flow line or

associated production equipment is damaged in such a way that would allow the escape of petroleum or water;

- (b) located in an approved position;
- (c) operated and tested at approved regular intervals; and
- (d) where a test indicates that it may not operate correctly, repaired or replaced forthwith.

**622 Workover of Wells**

An application for approval to work over a well, required by this Schedule, shall include particulars of -

- (a) any zone in the well proposed to be abandoned;
- (b) any zone in the well proposed to be developed;
- (c) any proposed changes to the equipment in or on the well; and
- (d) procedures proposed to be used.

(3) Where a well is to be worked over for gas lift operations, an approved pressure test that will prove the integrity of the well production casing, tubing and associated equipment shall, unless otherwise approved, be carried out within 12 months prior to the commencement of gas lift operations.

**623 Wireline Operations in Wells**

Except in an emergency, notice acceptable to the Director shall be given of an intention to conduct a non-routine wireline survey in a well or to move an item of subsurface equipment in a well.

**624 Pressure Vessel Inspection**

All pressure vessels shall be inspected and tested by a competent person in accordance with approved procedures and at approved intervals.

**625 Protection of Completed Wells**

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

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



- (3) On an inspection under Sub-Clause (2) -
- (a) all tubing and annulus pressures shall be measured;
  - (b) any evidence of communication shall be evaluated; and
  - (c) the extent of any necessary repairs or maintenance shall be determined.

(4) An Operator shall, at the end of each month, furnish the Director with a report on the wells that have been worked over during the previous month.

**626**

### **Plugging of Wells**

- (1) Unless otherwise approved, on completion of production activities and prior to the surrender of a production licence all wells shall be plugged and abandoned.
- (2) The Director may direct that a well be plugged and abandoned -
- (a) in the interest of safety;
  - (b) for the protection of the environment; or
  - (c) for the purpose of the elimination of waste or contamination.

**627**

### **Removal of Facilities**

Unless otherwise approved, on completion of production activities and within 2 years after the surrender of a production licence, every production facility shall be dismantled and removed or abandoned in a manner acceptable to the Director.

**628**

### **Restoration of Lands**

Following the completion of production activities and within 2 years after the surrender of a production licence, the land surrounding or affected by production facilities and wells shall be restored as far as practicable to its original condition to the reasonable satisfaction of the Director.

## **Division 2 - Reporting and Data Submission**

### **629 Program of Work**

A licensee shall in each year submit to the Director a program of work proposed to be carried out in the licence area during the next 12 months.

### **630 Estimate of Recoverable and In-Place Petroleum**

(1) A licensee shall, in each year, send to the Director a report of the amount of recoverable and in-place petroleum in each petroleum pool in the licence area which shall include -

- (a) the location of the petroleum pool;
- (b) the estimated amount of recoverable petroleum in a commercial pool or in-place petroleum in a currently non-commercial pool;
- (c) the data upon which the estimates are based;
- (d) a description of the reservoir (simulation) models used, a comparison of results with those previously obtained and a discussion of any implications regarding petroleum recovery; and
- (e) any specific reports prepared during the year in connection with reservoir performance and production optimization.

When a study resulting in a revised estimate of recoverable or in-place petroleum in a pool has been carried out, a report of that study shall be sent to the Director.

### **631 Monthly Production Report**

Not later than the last day of each month a production report in respect of each field, in an approved form, relating to the last preceding calendar month shall be sent to the Director including -

- (a) the total quantities of petroleum and water produced, injected, used, flared, vented, stored and delivered from the area;
- (b) the cumulative quantities of liquid and gaseous petroleum and water produced or injected as at the end of the month; and

- (c) for each well -
  - (i) its identification name and number;
  - (ii) a summary of all work performed on it during the previous month;
  - (iii) the result of the production test required by this Schedule, including the choke size used and the tubing and separator pressures observed during the test;
  - (iv) its status at the end of the month;
  - (v) the number of days of production or injection;
  - (vi) the total estimated quantities of liquid, gaseous petroleum and water produced or injected during the month, their corresponding daily average rates, average gas oil ratios and water cut data; and
  - (vii) the cumulative quantities of liquid and gaseous petroleum and water produced or injected as at the end of the month.

632

### **Production Facility Maintenance Reporting**

- (1) Reports shall be furnished to the Director as soon as practical after any -
  - (a) mechanical damage, corrosion or erosion that could affect the safety or integrity of a production facility to an extent that necessitates a change in operations; and
  - (b) non-routine corrosion investigation (such as instrumented pigging, acoustic emission testing and pipe examinations).
- (2) A report under Sub-Clause (1) shall include, or be followed by, a report on any repairs carried out.
- (3) Where a pressure test is carried out on a section of a production facility, a report on the results and interpretation, shall be sent to the Director within one month after the completion of the test.
- (4) In addition to the other requirements of this Clause, the Operator shall within two months after the end of each year send to the Director 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.

**633                      Records of Periodic Inspections**

- (1) Accurate records shall be maintained of all periodic inspections of facility equipment and piping.
- (2) Records shall include the particulars of the inspections, testing or proving of -
  - (a) pressure vessels;
  - (b) meters;
  - (c) pressure relief valves;
  - (d) control valves; and
  - (e) any other items, equipment or piping reasonably determined by the Director.
- (3) Records of inspections for corrosion shall be maintained for the production facility, equipment and piping.

**634                      Production Records and Reports**

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 to be furnished on a combined basis but, in that event, the production from each individual well shall 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).

**635                      Reports on Wireline Surveys and Sub-surface Safety Valves**

- (1) Where a wireline survey is conducted in a well, a report of the survey, together with any records made for the purpose of the survey, shall be submitted to the Director not later than the last day of the succeeding month.
- (2) A report of a wireline survey shall include;

- (a) one stable base transparent copy and one paper print of each log at each scale run in the survey; and
- (b) one stable base transparent copy and one paper print of computer processed interpretation logs if used.

## **PART VII**

### **GEOPHYSICAL AND GEOLOGICAL SURVEYING**

#### **Division 1 - General Requirements**

##### **701 Application**

A Operator shall ensure that all geophysical and geological surveys are conducted in accordance with the provisions of this Schedule.

##### **702 Person-in-charge**

(1) The name of the person-in-charge of any geological or geophysical party shall be clearly displayed at the site of that operation.

(2) The person-in-charge shall ensure that all personnel in his charge know and comply with all relevant requirements of this Schedule and applicable safety procedures.

##### **703 Approval to Carry out Geophysical and Geological Surveys**

(1) A person shall not carry out a geophysical or geological survey in connection with petroleum exploration or development without approval.

(2) An application for approval to carry out a geophysical or geological survey shall include -

- (a) the type of survey and the expected date of commencement, duration and cost;
- (b) a plan showing the area of the survey and existing land tenures, roads, tracks, mines, quarries and habitations;
- (c) in the case of seismic survey, details of the energy source to be used and a plan of the proposed survey traverses;
- (d) in the case of gravity, magnetic or geochemical survey, a plan showing the proposed survey stations and/or traverses and a brief description of operations;
- (e) a statement of proposed environmental protection and rehabilitation measures;
- (f) names and addresses of any contractors to be employed; and

- (g) a statement of arrangements with any other parties having an interest in the land affected.

(3) An application to carry out a geological or geophysical survey shall be submitted at least one month prior to the commencement of operations.

## 704

### Protection of the Environment

(1) A person carrying out a seismic survey in inland waters shall take all reasonable precautions to avoid -

- (a) damage to shoals of fish or fishing gear; and
- (b) depositing debris on the sea-bed which could cause damage to fishing gear or marine life.

## 705

### Explosives

(1) All operations involving the use of explosives shall be in accordance with the Dangerous Goods Act, its Regulations and Part IV of this Schedule.

(2) A person shall not detonate an explosive charge in inland waters -

- (a) within a distance of 8 kilometres of a person engaged in diving operations unless such person has been given adequate warnings of -
  - (i) the number and intensities of the charges to be detonated; and
  - (ii) the times at which the charges are to be detonated; or
- (b) within a distance of 2 kilometres of a person involved in diving operations.

(3) An explosive charge exceeding the equivalent of 20 kilograms of trinitrotoluene (TNT) shall not be detonated within a distance of 2 kilometres of any fishing boat or marker of any fishing gear.

## 706

### Operations on Roads and in Inhabited Areas

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

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

**707**

### **Marking Seismic Lines**

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

(2) Permanent markers shall consist of star pickets extending at least 1m above the ground surface, permanently marked with an identifying number, seismic line number, shot point number and identification of the person placing the marker. No marker shall be placed in a position where it can pose a threat to homes vehicles or stock.

**708**

### **Shot Holes and Energy Sources**

(1) A person shall not operate a vibrator within 20 metres of any gas, oil or water pipeline, electric cable or other utilities or installations.

(2) All shot holes shall be drilled off the cleared part of seismic lines, where reasonably practicable.

(3) A shot hole cap shall be placed immediately above the highest explosive charge and the shothole backfilled and tamped to surface before firing.

(4) The Director is to be notified immediately of any petroleum or artesian water resulting from shot hole drilling or the use of explosives.

(5) Prior to shooting in areas where there are gas or water pipelines, the pipeline Operator should be advised.

(6) Above ground blasting shall not be conducted within 150 metres of any perennial surface water, residence, well, bore or spring development.

(7) If a seismic line is to cross a pipeline the pipeline Operator shall be given opportunity to inspect the site.

(8) If required by the pipeline Operator, an earth ramp or other load-bearing structure shall be constructed over the pipeline before heavy vehicles begin crossing the pipeline.



**709**

**Shot Hole Temporary Plug**

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 shall be placed in or over the shot hole until the firing crew is ready to fire the charge.

**710**

**Permanent Shot Hole Plugs**

(1) A shot hole shall 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 a cave-in or collapse of a shot hole shall be restored.

**711**

**Uncontrolled Flow of Water**

Any flow of artesian water encountered during seismic drilling operations or subsequently detected shall be controlled and the Director shall be notified.

## **Division 2 - Reporting**

### **712 Weekly Reports**

A weekly report shall be forwarded to the Director stating progress of the survey. When a survey has been completed, a summary stating the start and completion dates and the number of kilometres or samples acquired (including geochemical samples) shall also be forwarded.

### **713 Basic Data Retention and Submission**

(1) Where a geological or a geophysical survey has been carried out, all basic data and original field records pertinent to the survey shall be retained in Australia, properly stored and maintained so as to prevent undue deterioration and submitted upon request or on ceasing to hold the applicable title area.

(2) All data that are to be submitted shall be clearly identified and labelled.

(3) When a geological or geophysical field survey has been carried out, the following information shall, unless otherwise approved, be made available within one month of completion of data processing -

(a) where a gravity or magnetic survey has been carried out, and where applicable, -

(i) one copy of processed magnetic tapes of both located and gridded data in the ASEG-GDF format;

(ii) one stable base transparent copy of Bouguer gravity, free air gravity, total magnetic intensity and, if prepared, vertical gradient and residual contour maps;

(iii) one stable base transparent copy of computer generated profile data; and

(iv) one copy of analog monitor records, diurnal records and altimeter records; and

any maps or profiles shall annotate line position, line number, registration marks and processing parameters;

(b) where a 2D seismic survey has been carried out, and where applicable, -

- (i) one stable base transparent copy of both a single survey and composite shotpoint location map together with one copy of magnetic tapes or other approved digital media of shotpoint coordinates and elevations (geographic and Australian Map Grid) in United Kingdom Offshore Operator Association format if possible and related to the Australian National Spheroid;
  - (ii) one stable base transparent copy of final processed sections having a vertical scale of not less than 10cm/sec, and, if prepared, migrated sections;
  - (iii) one microform copy (and if available one hard copy) of velocity analysis data; and
  - (iv) one copy of CDP and final stack data on magnetic tape;
- (c) where a 3D seismic survey has been carried out and where applicable, -
- (i) data submission shall be as per Sub-Clause 713(3)(b) except that the interval between the lines will be at the discretion of the Director;
  - (ii) one copy of field tapes accompanied by observer's logs in an acceptable format shall be submitted at the specific request of the Director; and
  - (iii) one copy of final stacked migrated tapes, in a specified SEG standard format, shall be submitted suitable for loading onto interactive work stations for interpretation.

(4) All magnetic tapes or other digital media submitted shall be of at least manufacturers certified "error free" quality and be accompanied by suitable verification testing.

(5) Where seismic reprocessing, an analysis, study or operation not covered by Sub-Clause (1) is undertaken to satisfy the work commitments of the title, a written report of the activity and interpretation of the results shall be forwarded to the Director as soon as possible.

(6) Activities referred to in Sub-Clause (5) include but are not limited to geophysical and geological studies and seismic reprocessing.

Data submission for seismic reprocessing shall be as in Sub-Clause 713 (3) (b) (ii). Location data previously submitted need not be resubmitted unless the lines have been resurveyed.

**714**

### **Final Reports on Geophysical and Geological Survey**

(1) Where a geophysical or geological survey has been completed a report shall be submitted not later than six months after the completion of the project.

(2) A report relating to a geophysical or geological survey shall include -

- (a) the name and location of the survey;
- (b) the dates of commencement and termination;
- (c) the names of contractors used;
- (d) the final line kilometres recorded;
- (e) particulars of the operations carried out;
- (f) particulars of the system and equipment used for positioning and mapping;
- (g) particulars of the methods and equipment used;
- (h) particulars of the processing of the data obtained;
- (i) particulars of the interpretations made together with resulting maps and sections;
- (j) a summary of the survey costs;
- (k) a list of magnetic tapes with index of contents and format; and
- (l) any other specific reports prepared in connection with the survey.

## PART VIII

### REPORTING REQUIREMENTS FOR EXPLORATION TITLES

801

#### **Periodic Reports**

- (1) Quarterly reports required under the Act shall include -
  - (a) a brief review of operations (including office studies) carried out;
  - (b) estimated expenditure for the quarter;
  - (c) survey statistics;
  - (d) relevant geophysical and geological interpretations; and
  - (e) such other relevant information as the Director requires.
  
- (2) Annual reports required under the Act shall be more comprehensive than a quarterly report and shall include -
  - (a) a general discussion of title status and operations carried out (including office studies);
  - (b) technical conclusions derived from the year's operations;
  - (c) a list of reports submitted during the year;
  - (d) an outline of work plans for the next year; and
  - (e) a summary of annual expenditure.
  
- (3) The annual report may take the place of the fourth quarterly progress report required under Sub-Clause (1).

## APPENDIX 1

### Australian and Other Standards or Codes Referenced in this Schedule

| <b>Standard/Code</b> | <b>Title of Standard or Code</b>   |
|----------------------|--|
| AS 1210              | "Unfired Pressure Vessels"   |
| AS 1270              | "Acoustics - Hearing protectors"   |
| AS 1271              | "Valves, water gauges and other fittings for boilers and unfired pressure vessels"   |
| AS 1319              | "Safety signs for the occupational environment"  |
| AS 1336              | "Recommended practices for eye protection in the industrial environment"   |
| AS 1337              | "Eye protectors for industrial applications"   |
| AS 1338              | "Filters for eye protectors"   |
| AS 1380              | "Fibre-rope slings (of natural or synthetic rope)"   |
| AS 1418              | "Cranes (including hoists and winches) (known as the SAA Crane Code)"  |
| AS 1576              | "Code of practice for metal scaffolding (known as the SAA Metal Scaffolding Code)"   |
| AS 1577              | "Solid timber scaffold planks"   |
| AS 1656              | "Specifications for Wire Rope"   |
| AS 1657              | "Fixed Platforms, walkways, stairways and ladders - Design, construction and installation (know as the SAA Code for Fixed Platforms, Walkways, Stairways and Ladders)" |
| AS 1658              | "Household synthetic laundry detergent power (composition basis)"  |
| AS 1666              | "Wire-rope slings"   |
| AS 1715              | "Selection, use and maintenance of respiratory protective devices"   |
| AS 1716              | "Respiratory protective devices"   |
| AS 1768              | "Lightning protection"   |

|            |   |
|------------|---|
| AS 1800    | "The selection, care and use of industrial safety helmets"  |
| AS 1801    | "Industrial safety helmets"   |
| AS 1844    | "Portable fire extinguishers - Foam (gas container) type"   |
| AS 1845    | "Portable fire extinguishers - Foam (stored pressure) type "  |
| AS 1846    | "Portable fire extinguishers - Powder type"   |
| AS 1847    | "Portable fire extinguishers - Carbon dioxide type"   |
| AS 1848    | "Portable fire extinguishers - Halon type"  |
| AS 1851    | "Maintenance of fire protection equipment"  |
| AS 1885    | "Code of practice for recording and measuring work injury experience"   |
| AS 1978    | "Pipelines - Gas and liquid petroleum - Field pressure testing (known as the SAA Code for Field Pressure Testing of Pipelines)" |
| AS 2018    | "Liquid Petroleum Pipelines (known as the SAA Liquid Petroleum Pipeline Code)"  |
| AS 2161    | "Industrial safety gloves and mittens (excluding electrical and medical gloves)"  |
| AS 2187    | "Explosives - Storage, transport and use (know as the SAA Explosives Code)"   |
| AS 2210    | "Safety footwear"   |
| AS 2430    | "Classification of hazardous areas"   |
| AS 2759    | "Steel Wire Rope - Application guide"   |
| AS 2865    | "Safe working in a confined space"  |
| AS 2885    | "Pipelines - Gas and Liquid Petroleum"  |
| AS 3569    | "Steel Wire Ropes"  |
| API Std 4A | "Specification for Steel Derricks"  |
| API Std 4D | "Specification of Portable Masts"   |
| API Std 4E | "Specification for Drilling and Well Servicing Structures"  |

|                 |  |
|-----------------|--|
| API Std 600     | "Steel Gate Valves, Flanged or Buttwelding Ends"   |
| API Std 605     | "Large-Diameter Carbon Steel Flanges"  |
| API Spec 5CT    | "Specification for Casing, Tubing and Drill Pipe"  |
| API Spec 6A     | "Specification for Wellhead and Christmas Tree Equipment"  |
| API Spec 6D     | "Specification for Pipeline Valves"  |
| API Spec 7      | "Specification for Rotary Drilling Equipment"  |
| API Spec 8A     | "Specification for Drilling and Production Hoisting Equipment"   |
| API Spec 9A     | "Specification for Wire Rope"  |
| API Spec 10     | "Specification for Materials and Testing of Well Cements"  |
| API Spec 16A    | "Specification for Drill Through Equipment"  |
| API RP 5CI      | "Recommended Practice for Care and Use of Casing and Tubing"   |
| API Bull 5C2    | "Bulletin on Performance Properties of Casing Tubing and Drill Pipe"   |
| API RP 9B       | "Recommended Practice of Application, Care and Use of Wire Rope and Oil Field Service"   |
| API RP 54       | "Oil and Gas Well Drilling and Servicing Operations"   |
| API RP 54       | "Safe Practices in Air and Gas Drilling"   |
| API RP 53       | "Blow-out Prevention Equipment Systems for Drilling Wells"   |
| API RP 13B      | "Recommended Practice for Standard Procedure for Testing Drilling Fluids"  |
| API RP 500B     | "Classification of Areas for Electrical Installations at Drilling Rigs and Production Facilities on Land and on Marine Fixed and Mobile Platforms" |
| API RP 44       | "Recommended Practice for Sampling Petroleum Reservoir Fluids"   |
| ANSI/ASME B16.5 | "Steel Pipe Flanges and Flanged Fittings"  |
| ANSI/ASME B31.3 | "Pressure Piping, Chemical Plant and Petroleum Refinery Piping"  |