AN ENVIRONMENTAL CODE OF PRACTICE FOR THE NEW ZEALAND PETROLEUM INDUSTRY: IS ONE NEEDED?

D C Stickley
P O Box 1095, Wellington

Abstract

All phases of the New Zealand petroleum industry (exploration, production, transportation, storage and distribution) are governed by various overlapping, if not conflicting, pieces of legislation. The separate treatment of petroleum under the Crown Minerals Act 1991 was a recognition that ownership and grants of right to mineral resources was a function of government that is distinct from protection of the environment. Nevertheless, the Resource Management Act 1991 is the central statute which co-ordinates conditions for prevention of marine pollution under the Marine Safety Authorities Act, Dangerous Goods Act, and the proposed Hazardous Substances and New Organisms legislation.

On-the-ground compliance has largely been delegated to local authorities. The adoption of regional and district plans recognising petroleum exploration and production as a permitted activity subject to resource consent requirements presents the opportunity for the New Zealand petroleum industry to put forward a code of practice that integrates a system of compliance to meet many, if not all, statutory requirements and ease the administration of this legislation by local authorities.

Introduction

Environmental rules and regulations affecting the petroleum industry are on the increase throughout the world. New Zealand is no exception in requiring that more and more attention be given to environmental concerns.[1] All phases of the industry (exploration, production, transportation, storage and shipping) are governed by various overlapping and at times conflicting, pieces of legislation. Environmental effects are evaluated and regulated under the following statutes:

- Resource Management Act
- Dangerous Goods Act
- Marine Pollution Act
- Health and Safety in Employment Act

New legislation is on the agenda for Parliamentary action in 1994 and includes:

- Marine Safety Authorities Bill
- Hazardous Substances and New Organism Bill

The mosaic of compliance created by this legislation is shown in figure 1.

A New Environmental Paradime

Since the adoption of the first comprehensive environmental laws in the late 1960s, protection of the environment has expanded and now has all the dimensions of a global movement.[2] Public opinion polls in the United States and Europe demonstrate the majority of people ascribed to the view that "greener-is-better". If anything, this sentiment is stronger in "clean-and-green" New Zealand.

Energy gets prime attention because the environmental consequences from its life-cycle of extraction, conversion and waste disposal are felt globally, regionally and locally. This is clearly illustrated by the fact that all of the specific environmental initiatives nominated by a gathering of fifty leaders of multi-national corporations were energy related. They include:

- Assess energy efficient investments at the lowest discount rate applicable to any investment.
- For utilities set up 'best practice' systems to aid developing country utilities.
- Set up joint international efforts to tackle major projects, such as Soviet gas pipeline leaks.
- Take the lead in energy use labelling on products and processes.
- Make staff available to help East European developing country companies with energy efficiency and audit efforts.
- Initiate with governments long-term energy strategies consistent at the national, regional and global level such as the Japanese Action Programme to arrest Global Warming ("New Earth 21").[3]

The one element the environmental movement had lacked since its inception was a central organising principle. That gap was filled by the report of the Bruntland Commission

1. Proposed Regional Policy Statement for Taranaki; Taranaki Regional Council September 1993, includes specific discussion of oil and gas industry.
2. The Economist "Environmentalism Runs Rampant" 8 August 1992 page 11.
3. Schmidhevy, Changing Course page 338.

which introduced the terminology of "sustainable use" into our lexicon.[4] This philosophy underlies the purpose of "sustainable management" as expressed in New Zealand's Resource Management Act.[5]

Energy strategists have quickly adopted this philosophy.[6] Individual companies have also shown that this principal can be integrated with their corporate objectives.[7]

The significance of this principle can be demonstrated by tracking the evolution of measures for protecting the quality of the environment. Before doing this it should also be pointed out that environmental protection itself is a blend of two forces. One force is the protection of habitat and species going back to the conservation ethic of the late 19th Century. The other force is the protection of public health and work-place safety which is grounded in the general goal of government to promote the social welfare of its citizens.

The initial approach was to prevent further degradation of the environment through command-control legislation. The guiding philosophy was that which is not approved is prohibited. Impact assessments had to be undertaken, permits and approvals obtained in advance of field activity. Numeric standards and government mandated design criteria were employed as control tools.

A new approach to environmental management advocates the use of performance standards and adoption of technology as measures which are more effective than coercion. Best available control technology, and the best practicable option are a recognition that industry rather than government possess the necessary level of technical competence to deal with the complex and financially expensive inter-relationships required to achieve environmental goals.[8]

In the early 1980s there was a shift of focus to another generation of environmental laws which are directed at response and remediation. Not only would new discharges be dealt with but sites which had been contaminated prior to the enactment of such legislation would be investigated, evaluated and cleaned up. The expense of this process also meant that new forms of liability and funding would need to be marshalled which resulted in the principle that the "polluter pays". The criminalization of conduct which violated environmental standards became the forcing action for the three R's: "Reporting, Response and Remediation".

Strict liability (criminal and civil) without regard to either fault or mental intent has been an added incentive for maximum compliance.[9] However, some strict liability regimes also have set financial limits in the extent of recovery. For example, The International Convention on Civil Liability for Oil Pollution Damage sets a limit of $134 per gross registered ton or $14 000 000 whichever is less. The $2 billion Exxon paid for the discharge from the *Exxon Valdez* is contrasted by the liability cap under the international treaty for the *Braea* grounding on the Shetland Island.[10]

Special funds or accounts were established in order that governments or industrial grounds would have on stand-by the resources when the responsible party either would not or could not meet its obligations.[11]

We are now at another stage in the evolution of legal regimes for protection of the environment. This is due to the inadequacies, not the successes, of the earlier modules. Complex and detailed regulations have become expensive to administer, inflexible and inefficient at obtaining environmental goals. Government controls are being supplanted by self-regulation and surrogate controls through financial instructions and insurance companies. Both are market driven. Economic instruments so called "blue and green taxes" are employed to add fiscal incentive to reduce pollution. In the case of the energy industry, carbon taxes compare as a more favourable alternative to the package of regulations being designed to meet the goals governments set for themselves at the June 1992 Rio Earth Summit for the reduction of carbon dioxide emissions to 1990 levels.[12]

An industry response

Unlike other major issues such as taxation and surface access where the petroleum exploration industry has responded collectively, the nature of environmental compliance has largely been a matter of individual conscience for each company and joint venture group. The Land Access Code recently issued jointly by the Petroleum Exploration Association of New Zealand (PEANZ) and Federated Farmers is a notable exception. Some companies have adopted corporate environmental policies and have formalised the role of environmental management in their organisation structures.[13] Other participants, including the Crown, are more ad hoc in their approach to the issue with environmental policies being left to the discretion of the operator for the particular licence or permit.

The production of energy from hydrocarbons produces local, national and global environmental effects. It is neither realistic nor fair for the upstream segment of the petroleum industry to be accountable for broader impacts resulting from the consumption of energy. However, there are matters which can be addressed that are easily within the control of the individual companies and their trade association. For example, the re-direction or elimination of toxic chemicals

4. The World Commission on Environment and Development, Our Common Future (Oxford University Press 1987). According to the Bruntland Report, "sustainable development is that which meets the needs of the present without compromising the ability of future generations to meet their own needs".
5. The purpose of the Act is to promote the sustainable management of natural and physical resources as described in Section 5 of the Act.
6. John Reet, Energy and the Ecology of Sustainability, Washington D.C. (1992) pages 192–263.
7. Shell Canada Ltd., "Implementing a Sustainable Development Policy in Shell Canada Limited": September 4, 1990.
8. The Resource Management Act measures the selection of Best Practicable Option according to environmental sensitivity, comparison of financial implications, and current technology in controlling or minimising adverse effects from discharges of contaminants.
9. S. 341 of the Resource Management Act treats specific violation as strict liability offences.
10. Similar limits on liability are incorporated in the Marine Safety legislation pending before the Parliament.
11. A special levy on the awareness of oil sites is part of the Marine Pollution provisions of the Transport Law Reform Bill.
12. The Economist "Carbonated Growth", August 8, 1992 page 57.
13. For example, Petrocorp Exploration Ltd has issued a corporate environmental policy.

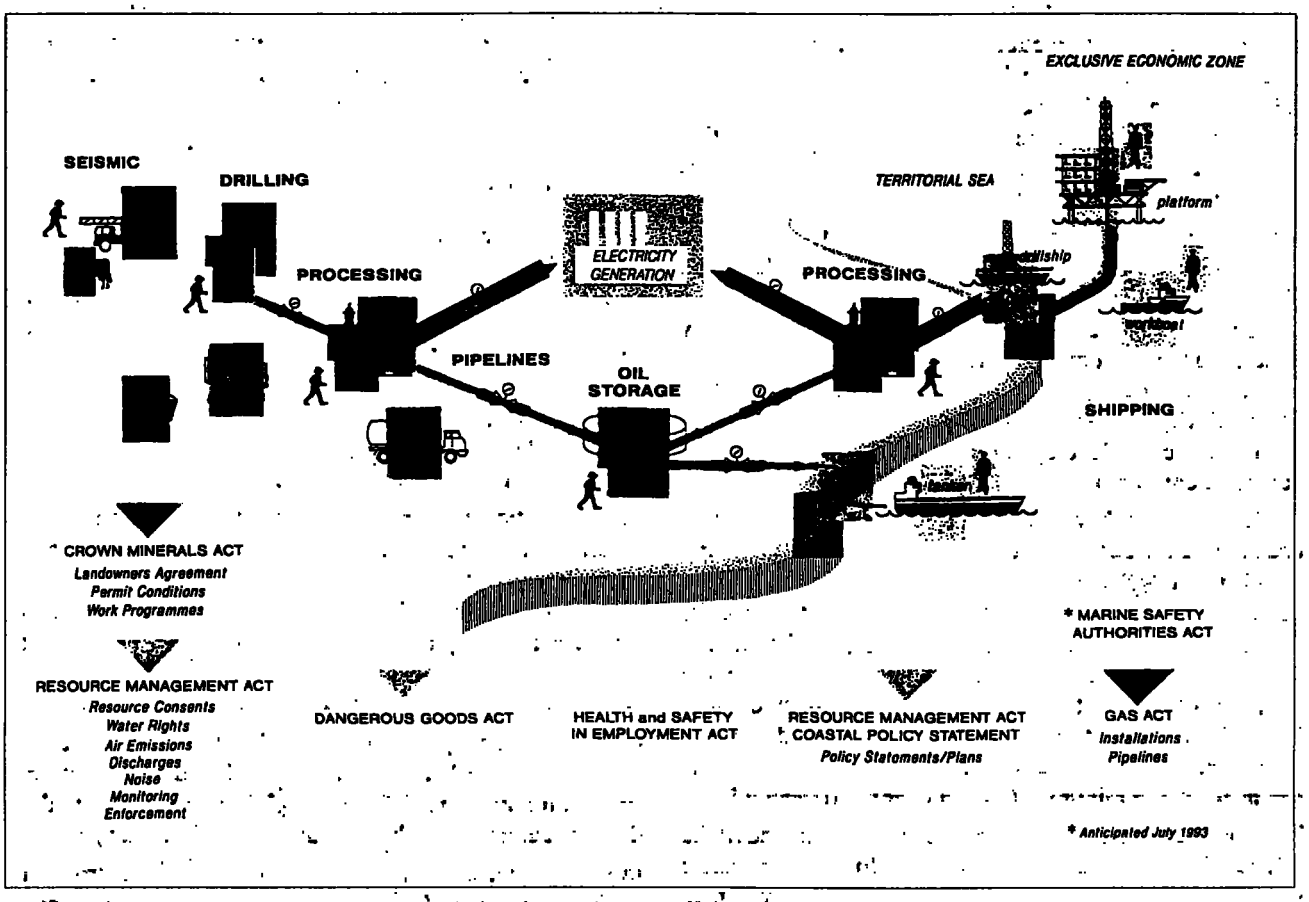

Fig. 1. Environmental regulation of the petroleum exploration and production industry.

used in drilling fluids is easily achievable, as is the proper disposal of muds and brines. Furthermore, as groups like PEANZ seek to influence the national agenda on considerations such as the Stratford Power Station, or the National Coastal Policy, a common commitment to protection of environmental quality adds weight to the credibility of positions that are taken in these policy debates.

On-the-ground compliance is largely delegated to local authorities.[14] Promptly after enactment of the Resource Management Act, PEANZ became pro-active with regional and district councils to have petroleum exploration and production recognised as acceptable activities, under their plans, and rules implementing sustainable environmental management. Although local authorities require resource consents for seismic surveys, exploration and production this effort has been a success.

Promulgation of an Environmental Code of Practice can be particularly effective in dealing with local governments. Local authorities lack the financial and technical resources to "police" environmental conditions inserted in Resource Consents. Monitoring is usually handled by the consent holder, particularly as uncertainty about the efficacy of this procedure has been resolved in the 1993 Amendments to the Resource Management Act.[15]

Self-regulation and codes of practice

Trade groups have always played an important part in the determination of standards of behaviour whether indirectly through participation in the legislative process or more directly in laying down codes of conduct governing the behaviour of their members. Government and public attitudes towards regulation by professions, trade associations, labour unions and other bodies of the conduct of members has varied from passive acceptance to encouragement and reliance upon either whereby its own policies may be discharged more effectively or as an alternative or complement to formal regulation.

Increasingly, non-statutory codes of conduct have been accompanied by legislative provision for their formulation. These codes represent a shift in emphasis from the command and control coercion to self regulation, persuasion and education.

Various trade associations such as the Fertilizer Association and Advertising Standards Association in New Zealand have adopted voluntary codes of practice.

There are three steps in the formation of an Environmental Code of Conduct:

1. Identification of the substantive areas and practices.
2. Acceptance by the effectual parties.
3. Meaningful self-regulation.

The scope of exploration and production operations which could be addressed in a Code of Conduct are detailed in the Appendix attached to this paper.

Self-regulation can be defined as a process in which a profession or industry assumes the responsibility of setting

14. Under the Resource Management Act, local authorities are responsible for issuing consents and permits.

15. S. 58 of the Resource Management Amendment Act 1993 allows local authorities to make monitoring and reporting a condition of a consent.

socially acceptable standards of practice.[16] Corporate policy statements, codes of practices, regular auditing and work-force training have become the main components of industry self-regulation. Collectively, they amount to a programme of behaviour modification and the tacit recognition that those closest to the process know best how to manage it. This is where sustainability best fits into the equation.

Acceptance of self-regulation can be furthered by incorporating the principles of sustainable development. Certification to international standards can be used to demonstrate to regulators and the public that a company adheres to the "best practice" rules for its sector, including environmental management. For example, The International Standards Organisation (ISO) and British Standards Institute (BSI) have each developed comprehensive standards for corporate environmental management systems.

Trade associations have played an important role in advancing codes of environmental conduct for their subscribing members. The Australian Mining Council has developed detailed recommendations on land reclamation for its members.[17] An impressive array of firms have shown their commitment to recognise environmental values in the adoption of corporate policy statements and guidelines. Trained environmental professionals are employed to ensure compliance goals are achieved as well as to investigate means for waste minimisation and energy efficiency.[18]

There is usually a reluctance by trade groups to undertake self-regulation for a combination of the following reasons:

- A concern that certain factions in the industry will take control.
- The level of cost and how to apportion cost among members.
- A concern that corporate direction and control over operations will be surrendered.
- The code will not be effective as other rules still control legal obligations.

While the objective of a code of practice is to demonstrate that industry can protect the public interest, self-regulation does hold the potential to work against that goal. This can happen in one of two ways. Firstly, it can be used to restrict access to funds or facilities on the part of participants who are not members of the 'club'. Secondly, it can become a form of exploitation of the public or other groups.

Conclusion

To be effective an environmental charter would need to be accepted by individual petroleum companies. This step could be accomplished as a free-standing statement of intent ascribed to the individual companies, as part of acceptance of members of PEANZ, or as a private treaty with producers, authorities as well as cultural and environmental interest groups. My personal preference is to have it developed by and for trade association members following an open dialogue with citizen interest groups and Iwi.

Self-regulation must be seen to be effective if it is to be credible. A complaints register should be established and issues resolved through consultation and mediation. This process could be irrelevant if formal investigations and remedies are being pursued through statutory enforcement procedures.

However, if you accept the adage that "a-good-offence-is-the-best-defence" performing according to a code of practice which is established by a recognised trade body offers support for statutory defences or pleas in mitigation under those circumstances when the unforeseen does happen.

In conclusion, the atmosphere is right for the petroleum exploration in New Zealand to adopt an environmental code of practice. This action is a natural extension of petroleum mining as a permitted controlled activity under local plans and regional policy statements and access to private property. Moreover, systems of self-regulation add to, rather than cut down, compliance with the Resource Management Act.

Finally, it demonstrates to the general public that the industry is mature and confident enough in its own ability to take the initiative to recognise and preserve the environmental values that are so much a part of New Zealand's heritage.

16. G. Wiggs, "Essay on Self Regulation - a Mix of Judicial and Marketing Principles".
17. Australian Mining Industry Council Rehabilitation Handbook.
18. Forest W. Frazer, "Comprehensive Environmental Training Programme for the Production of Oil and Gas Industry" Proceedings of the First International Symposium on Oil and Gas Exploration and Production Waste Management Practices.

Author

DENNIS STICKLEY is a senior solicitor in the Wellington office of Bell Gully Buddle Weir where he primarily practises in the subject matters of energy, environmental and international trade law. Mr Stickley has been a Fulbright Fellow in New Zealand and received Resource Economics and Law from the University of Wyoming and holds a Law Masters-Energy Law from the University of Utah College of Law. He is formerly General Counsel of Sinclair Oil Corporation and Petrocorp Exploration Limited. Mr Stickley practises internationally in the field of petroleum law and has been legal adviser to Pertamina and Kazakhstanmunaygaz. He is also a lecturer on the topic of Energy Negotiations at the Centre for Petroleum Mining Law & Policy, University of Dundee.

Appendix : Environmental Considerations in Petroleum Exploration and Production

Drilling Locations

1. Characteristics
   - (a) Current land use
   - (b) Ownership
   - (c) Access requirements
   - (d) Regulatory environment
   - (e) Records
   - (f) Storage restrictions
2. Consents
   - (a) Air emission
   - (b) Water rights
   - (c) Waste disposal
   - (d) Drilling permit
3. Preparation and Delineation
   - (a) Environmentally sensitive conditions
     - (i) Flora
     - (ii) Fauna
   - (b) Soil characteristics
     - (i) Porosity/Permeability
     - (ii) Chemistry
     - (iii) Physical characteristics
     - (iv) Volume
   - (c) Groundwater characteristics
     - (i) Flow
       - (a) Volume
       - (b) Depth
       - (c) Direction
     - (ii) Chemistry
     - (iii) Drainage conditions
   - (d) Surface water characteristics
     - (i) Proximity to open flow (streams/rivers)
     - (ii) Storm water discharge
     - (iii) Standing water
     - (iv) Precipitation patterns
   - (e) Existing discharge sources
     - (i) Type
       - (a) Air
       - (b) Water
       - (c) Solid waste
     - (ii) Volumes
     - (iii) Chemistry
     - (iv) Background levels
4. Remediation/Reclamation
   - (a) Soil
   - (b) Water
   - (c) Air
   - (d) Pre-existing amenities
   - (e) Recontour
   - (f) Replant

Drilling, Testing and Workover

1. Contaminated Materials
   - (a) Oil-contaminated soils
   - (b) Produced-water-contamination soils
   - (c) Lubrication oils
   - (d) Oily debris and filter media
     - (i) Solids
       - (a) Gravel
       - (b) Sand
       - (c) Coal
     - (d) Diatomaceous earth
     - (e) Tank bottoms
       - Emulsions
       - Heavy hydrocarbons
       - Produced sand
     - (f) Spent filters
       - Cartridge
       - Canister
2. Drilling-related Material
   - (a) Treated waste fluids
   - (b) Injected waste fluids
   - (c) Cuttings
   - (d) Pits (Flare, Mud, Gun)
     - (i) Streams
       - (a) Residual drilling fluids and solids
       - (b) Cement returns
       - (c) Freshwater
       - (d) Saltwater
       - (e) Oil
       - (f) Cuttings
     - (ii) Construction
       - (a) Put integrity
         - Bunding
         - Liners
     - (iii) Operation
       - (a) Volume of material
       - (b) Type of material
       - (c) Overflow conditions
       - (d) Blowdown and emergency
       - (e) Workover
       - (f) Basic sediment
       - (g) Percolation
       - (h) Unlined skimming/settling
       - (i) Produced water
       - (j) Evaporation
     - (iv) Closure
       - (a) Free oil disposal
       - (b) Total dissolved salts (TDS)
       - (c) Additional metals
       - (d) Water disposal
3. Well Completions and Workovers
   - (a) Hydraulic fluids
   - (b) Spent workover fluids
     - (i) Weighting agents
     - (ii) Biocides
     - (iii) Surfactants
     - (iv) Muds
     - (v) Produced water
     - (vi) Acids
     - (vii) Inhibitors
     - (viii) Gels
     - (ix) Solvents
   - (c) Efficiency of chemical use
   - (d) Area
     - (i) Soil
     - (ii) Usable ground and surface waters
   - (e) Other
     - (i) Produced sand
     - (ii) Formation scale
     - (iii) Pipe scale
     - (iv) Cement cuttings
     - (v) Downhole equipment
   - (f) Hydrocarbon-based materials or saturated brines
   - (g) Wellbore fluids
   - (h) Used oils and filters
   - (i) Miscellaneous waste
4. Spillage and Consumables
   - (a) Hydraulic fluids
   - (b) Waste oil
   - (c) Fuel spillage
   - (d) Mud additive spillage
   - (e) Drums and empty containers
     - (i) Cement

(ii) Drilling mud
(iii) Paint
(iv) Pipe dope

f) Toxicity and environmental persistence

5. Water
   (a) Mixing water
   (b) Potable water
   (c) Stormwater
   (d) Groundwater
   (e) Rigwash
   (f) Hydrostatic testing water
   (g) Injection water
6. Domestic Waste
   (a) Rubbish
   (b) Sewage
7. Debris
   (a) Rags
   (b) Sorbents
   (c) Filters
8. Chemicals
   (a) Drilling chemicals
   (b) Drilling fluids
   (c) Commission fluids
   (d) Cement
   (e) Explosives
   (f) Completion chemicals
   (g) Oils
      (i) Fuel and oil
      (ii) Waste oil (sumps)
      (iii) Waste oil
   (h) Solvents
   (i) Eco-toxic

Field Production Facilities

1. Flow Lines
   (a) Pigging operations
   (b) Emergency shutdown
   (c) Pressure sensing equipment
   (d) Areas of particular sensitivity
      (i) River crossings
      (ii) Habitation
      (iii) Sensitive land use
2. Pour Point Depressant
   (a) Storage
   (b) Injection
   (c) Spillage
   (d) Volume
3. Separators
   (a) Bottoms
   (b) Sand and scale
   (c) Water
4. Free Water Knockouts
   (a) Solids
   (b) Bottom sludges
5. Heater Treaters/Electrostatic Treaters
   (a) Solids
   (b) Bottom sludges
   (c) Absorption material
6. Oil Stock Tanks
   (a) Breathing losses
   (b) Connection losses
   (c) Flue gas
   (d) Spillage
   (e) Pigging operations
   (f) Domestic
      (i) Septic tanks
      (ii) Solids
   (g) Tank bottoms
   (h) Losses due to leakage
   (i) Soil
   (j) Groundwater
7. Centrifugal Desanders
   (a) Solids
   (b) Sand
8. Produced-water Tanks
   (a) Bottoms
   (b) Solids
   (c) Sand
9. Filters
   (a) Permanent-filter backwash fluid
   (b) Spent filter material
10. Separators and Retention Ponds
   (a) Sludge removal
   (b) Spills
   (c) Groundwater contamination

Associated Processes

1. Produced-water
   (a) Injection systems
   (b) Marine discharges
2. Steam Generators and Associated Water
   (a) Water softening facilities
      (i) Regeneration brine
      (ii) Surplus soft water
      (iii) Excess de-ionised water
      (iv) Backwash water
      (v) Sulphur dioxide liquor
   (b) Steam Generators
      (i) Fuel exhaust
      (ii) Fuel oil filters
      (iii) Spent water softening resin
      (iv) Refactory waste
3. Compressors
   (a) Cooling water
   (b) Used lubrication oils and filters
4. Dehydration and Sweetening Units
   (a) Iron sponge
   (b) Spent glycol
   (c) Spent amine
   (d) Spent caustic
   (e) Filter media
5. Produced Gas and Fuel Gas Scrubbers
   (a) Recovered fluids
   (b) Recovered solids
6. Methanol Injection and Line Heaters
7. Cooling Tower Blowdown
   (a) Boiler water
   (b) Scrubber liquids
   (c) Steam generator wastes
   (d) Boiler water
   (e) Sulphur dioxide in stack grass
   (f) De-ionised water
8. Gas Plant
   (a) Inlet separation and compression
      (i) Produced water
      (ii) Jigging materials
      (iii) Inlet filter media
      (iv) Corrosion treatment fluids
      (v) Solid material
         (a) Pipe scale
         (b) Rust
         (c) Reservoir formation material
      (vi) Compressors

(a) Engine cooling water
(b) Lubrication oil filters

(vii) Emergency blowdown
(a) Fluids slugs
(b) Excessive gas pressure

(b) Dehydration
(i) Liquid desiccants
(a) Ethylene
(b) Diethylene
(c) Triethylene glycol

(ii) Solid desiccants
(a) Alumina
(b) Silica gel
(c) Silica-alumina beads
(d) Molecular sieve

(iii) Wastes
(a) Glycol-based fluids
(b) Glycol filters
(c) Condensed water
(d) Solid desiccants

(c) Sweetening/sulphur recovery
(i) Amine
(ii) Sulfinol
(iii) Iron sponge
(a) Iron sulphide
(b) Carrier material

(iv) Caustic material
(v) Other

(d) NGL recovery
(i) Lubrication oils
(ii) Spent or degraded absorption oil
(iii) Waste water
(iv) Cooling tower water
(v) Boiler blowdown water

(e) Compression and plant utilities
(i) Wastes
(ii) Used lubrication oil
(iii) Cooling waters
(iv) Lubrication and hydraulic oil drips
(v) Waste water
(vi) Cleaning solvents