MINISTER FOR ENVIRONMENT

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED (PURSUANT TO THE PROVISIONS OF THE ENVIRONMENTAL PROTECTION ACT 1986)

PROPOSED AMMONIA-UREA PLANT AT KWINANA

CSBP AND FARMERS LTD NORSK HYDRO A.S.

This proposal may be implemented subject to the following conditions:

1. The proponent adhering to the proposal as assessed by the Environmental Protection Authority and fulfilling the commitments made for environmental protection (copy of commitments attached).

2. The plant shall be constructed on the proponent's preferred site as defined in the Environmental Review and Management Programme.

3. The proponent shall prepare in stages, a comprehensive and integrated hazard and risk management strategy, to the requirements of the various Government Agencies involved and to the Environmental Protection Authority's satisfaction.

   This shall consist of the following, with the results being forwarded to the Environmental Protection Authority:

   - the HAZOP review to be completed and submitted before mechanical construction commences and to be conducted in a manner approved by the Environmental Protection Authority;

   - a hazard analysis update (including a fire safety plan, a plan detailing the management of the commissioning stage and a plan of emergency procedures) to be approved before plant commissioning; and

   - an audit of risk and hazards to be submitted to the Environmental Protection Authority after two years of operation and upon request thereafter.

4. No more than 30 000 tonnes of ammonia (not including existing 10 000 tonne storage) shall be stored at the Kwinana plant location without further referral to and the approval of the Environmental Protection Authority.

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5. Prior to commissioning the plant, the proponent shall prepare a Plant Emergency Plan to the satisfaction of the Environmental Protection Authority, taking into account all appropriate contingencies. This Plan should conform with requirements of the Kwinana Emergency Plan and the Port Safety Management Plan.

6. The Government shall prepare and implement, by a date to be determined by the Minister for Environment, an overall and integrated Kwinana Emergency Plan and an integrated Fremantle Port Safety Management Plan incorporating the Kwinana industrial area and its surrounds. The Port Safety Plan should be compatible and integrated with the Kwinana Emergency Plan.

7. Prior to commissioning the plant, the Government, coordinated by the nominee of the Minister for Economic Development and Trade, shall devise and implement a plan, to the satisfaction of the Environmental Protection Authority, restricting access (except to people with adequate protective clothing) within proximity of the proposed loading and off-loading facilities.

8. Prior to commissioning the plant, the proponent shall provide to the Environmental Protection Authority's satisfaction, management proposals for the CSBP complex, designed to achieve additional reductions in nitrogen load of 7 tonnes per year. Nitrogen discharged from both the proposed plant and the CSBP complex into Cockburn Sound shall be monitored in a manner acceptable to the Environmental Protection Authority.

9. Prior to commissioning the plant, the proponent shall prepare a detailed report to the satisfaction of the Environmental Protection Authority, outlining the methods by which likely odours and fugitive emissions generated from the plant will be minimised or eliminated.

10. Prior to commissioning the plant, the proponent shall prepare a proposal for solid waste management and disposal from the site, to the satisfaction of the Environmental Protection Authority.

11. Although a preliminary proposal has been received, the proponent's final cooling water proposal shall be referred to the Environmental Protection Authority and its approval obtained prior to the commencement of construction.

12. Prior to commissioning the plant, the proponent shall develop a monitoring programme and reporting arrangements to the satisfaction of the Environmental Protection Authority which shall indicate how environmental management will be modified in response to monitoring reports.

Monitoring shall include, amongst other things, periodic wastewater monitoring such as:

- temperature of the wastewater discharge and of the surface waters of the Cockburn Sound at an appropriate distance from the point of discharge; and

- pH, nitrogen, total dissolved solids, and total suspended solids of the effluent.

Barry Hodge, MLA
MINISTER FOR ENVIRONMENT

27 JUL 1988

CSBP & FARMERS LTD
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PROPOSED AMMONIA/UREA PLANT

MANAGEMENT COMMITMENTS

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MANAGEMENT COMMITMENTS

1 OPERATIONAL PHILOSOPHY

- The incorporation of safety aspects into operations will commence with the selection of technologies and plant design that will minimize the risk of plant failure and human error. During the design phase, the proponents will undertake a Hazard and Operability (HAZOP) study in conjunction with the technology suppliers and engineering contractors to further enhance the plant's safety. In the procurement and construction phase, close attention will be paid to the quality control systems, both in vendors' equipment fabrication and in the plant construction.

- The philosophy for the automatic or manual shut-down procedure is developed based on maximum safety of the operators and equipment and the minimum disturbance to the environment.

2 DESIGN

2.1 General

- The process licensors' design philosophy will be adhered to.

- Operational stability will be achieved by duplication of critical equipment, a high level of automation and intensive training of operators.

- A check will be made on the final design to verify consistency with assumptions made in the preliminary risk analysis.

- If any of the economic factors affecting the cooling split change during the design stage of the project, then the situation will be reassessed and, where possible, the proponents will attempt to increase the use of air cooling if it is economic to do so.

2.2 Standards

- Appropriate Australian and international standards will be used in the design of the facilities.

- The ammonia storage tank will be designed to comply with API620.

- In accordance with recommended practice, the plant will be designed to a higher standard for earthquakes than required for normal structures.

2.3 Layout

- The design and layout of the plant will provide protection against damage and avoid the placement of equipment in vulnerable positions where impacts from vehicles could occur. The layout will also take into account plant operability, maintenance and access for escape and rescue.

2.4 Aesthetics

- The plant site will be attractively landscaped, and buildings will be aesthetically designed and have neutral coloration for compatability with the surrounding industrial setting.

2.5 Safety features

- All employees will be trained in the safe work practices and emergency procedures appropriate to the operation of the plant and handling of all associated materials.

- The process will be designed to meet or improve on current emission guidelines.

- The plant will be highly instrumented and computer-controlled, and will be equipped with interlock systems which, upon initiation from carefully selected process or equipment performance criteria, will ensure a safe emergency shut-down of the plant.

- Gas monitoring systems and equipment condition monitors will be installed in the plants, as required.

- Vapour detectors will be provided in the annular space of the ammonia storage tank, to provide early warning of ammonia releases and enable prompt emergency action to minimize vapour emissions (e.g. through the application of foam).

2.6 Water supply

- Where the clay seal separating the Safety Bay Sand from the limestone exists, the design and specification of the production bores will ensure that no leakage can occur across this seal.

3 CONSTRUCTION

- Liaison with local authorities will be conducted to ensure that impacts associated with noise, dust and traffic are minimized.

- Construction activity will be restricted to normal construction industry working hours.

- Dust suppression watering practices will be implemented.

- All construction materials and practices will be in accordance with the relevant Australian and international codes.

4 OPERATIONS

4.1 General

- Ongoing control of dust will be implemented.

- The dosage of anti-foulant (Alfloc 7348 for example) to the cooling water system will be controlled.

- Procedures will be developed and written for the operation of the plant, including automatic or manual shut-down.

4.2 Maintenance

- Regular preventative maintenance programmes will be implemented to minimize plant component failures.

- All maintenance tasks will require a written work permit, where all safety procedures will be specified, including their method of control and how the item maintained is to be tested before recommissioning.

- The routine checks on the plant and equipment, which will be carried out both continuously by the operators and periodically by the plant inspectors, will ensure that any unsafe or environmentally unacceptable leak or operating condition is detected and corrected. The plant management will be responsible for ensuring that all agreed routines are carried out and for making all personnel (including outside contractors working at site) aware of all the operational and personnel safety requirements on the site. Such requirements include familiarization with and adherence to all operational, safety and work routines, as well as personal safety requirements.

4.3 Management structure

- The plant will have an independent organization for its operation and maintenance, backed up by a Management Agreement with CSBP & Farmers Ltd and a Technical and General Assistance Agreement with Norsk Hydro a.s.

- In the setting up and operation of this structure, the plant will be able to draw on the extensive experience of both companies in relation to management of operations in the Kwinana region and that of operation of the ammonia/urea industry in particular.

- Policies will be set for the following areas:

  - industrial relations
  - safety and health
  - recruitment and training
  - public relations
  - environmental control.

5 HANDLING, STORAGE AND TRANSPORT

5.1 Products

5.1.1 Urea

- During plant operation, urea dust will be managed by operating the urea granulation process (including the urea dust scrubber) at design specification, regular monitoring of the gaseous emission from the scrubber, and maintenance of good housekeeping in and around the plant.

- Transfer of urea from the plant to the storage building will be via an enclosed conveyor. From the storage building to the ship loader, a high capacity covered conveyor will be used, with provision in the design for a dust extraction system if needed.

5.1.2 Ammonia

- The use of valves and other fittings that contain copper, zinc or silver, or their alloys, will be avoided in all facilities handling ammonia.

Export pump

- The pumps will stop automatically on activation of the emergency shut-down (ESD) system, and will be fitted with pressure differential alarms between suction and discharge.

- Ammonia vapour detectors will be strategically positioned around the pump and valves and set to operate the ESD system at a specific concentration level.

- If a no-flow signal is received from flow switches installed on the discharge flow meter, the ESD system will be activated.

Ammonia export pipeline

- The materials of construction will be suitable for the operating temperature of -33°C and will comply with Australian standards.

- A comprehensive quality assurance programme will be prepared covering manufacture and installation of pipelines, pipeline supports and valves.

- Corrosion protection of the pipeline will be provided.

- Valves will be welded onto the pipework where possible.

- Pressure monitoring of pipelines will be provided during operation for automatic operation and activation of ESD valves on sudden pressure drop.

- Isolation valves will be installed at each end of the pipeline and at the start of the wharf, working off an ESD system to minimize the amount of ammonia released if a pipe failure occurs.

- The line will be insulated and cooled prior to loading to minimize vapour generation during loading.

- The line will be protected from overpressure by a safety relief valve.

- As a safety precaution, the pipeline will be patrolled during the loading operation.

- The pipeline will be protected by impact barriers wherever there is a potential for damage by vehicles.

- Between shipments, the line will be depressurized and left full of ammonia vapour at slightly above atmospheric pressure.

- The export pipeline will be subjected to a full HAZOP study prior to the commissioning of the plant.

- Breathing apparatus will be made available to workers in the pipeline vicinity during loading.

- The above-ground ammonia pipeline will be clearly identified, including the use of warning signs.

Bulk cargo jetty and marine loading arm

- A comprehensive quality assurance programme will be prepared, covering the manufacture and installation of the pipeline and loading arm.

- Comprehensive procedures covering every aspect of the tanker loading operation will be developed.

- Pressure monitoring of the pipeline and loading arm will be undertaken during operation to enable automatic isolation of the wharf pipeline and loading arm by an ESD system acting on sudden pressure loss in order to minimize the amount of ammonia released in the event of a failure.

- Other activity on the wharf during tanker loading operations will be limited.

- Only electrical equipment approved for hazardous areas will be permitted to be energized for loading of ammonia.

- Procedures to warn against and prevent non-approved activities during loading will be implemented.

- An operator will be stationed on the wharf during the entire loading operation to watch the pipeline, report any malfunctions and to guard against any other activities interfering with loading.

- Corrosion protection will be provided for the pipeline and loading arm.

- Valves will be welded onto pipework (not flanged), where possible.

- The pipeline will be cooled prior to liquid loading to reduce vapour generation during loading.

- Shore-based ESD system will automatically activate the Speed Seal emergency release coupling and close the wharf isolation valves.

- Adequate fire-fighting facilities will be provided on the wharf.

- The loading arm will be stored between shipments and maintained, installed and commissioned according to a strict set of procedures.

- Although the concept of a mobile loading arm is considered reasonable, the proponents will investigate the feasibility of a permanently installed loading arm at the wharf.

5.2 Raw materials

5.2.1 Natural gas

- Safeguard systems will be designed to ensure that the natural gas fuel is shut off by a trip system in the event of a flame out or other furnace or fired boiler failure events.

5.2.2 Methyldiethanolamine (MDEA)

- Gloves and eye protection will be worn during MDEA handling operations.

- Contact with aluminium, copper, zinc and magnesium alloys will be avoided in the MDEA handling area.

5.2.3 Nitrogen

- The plant will have a continuous supply of nitrogen (for process purging) from a nitrogen gas distribution system in the Kwinana region, as well as from a plant storage of liquid nitrogen equipped with separate evaporator capacity to ensure safe and quick handling of hazardous developments in the plant.

6 ENVIRONMENTAL ISSUES

6.1 Gaseous wastes

- All gaseous waste products will be regularly monitored and disposed of in an environmentally safe manner and in accordance with statutory requirements to the satisfaction of the Environmental Protection Authority (EPA).

6.2 Odours

- The proponents confirm their commitment that adequate measures will be taken, both during the design stage and during the commissioning and operation stages of the plant development, to prevent odour generation from process vents, leaks and accidental gas releases.

6.3 Liquid wastes

- All liquid waste products will be regularly monitored and disposed of in an environmentally safe manner and in accordance with statutory requirements to the satisfaction of the EPA.

- Surface runoff from the process areas of the plant will be channelled into holding ponds and appropriately treated before disposal to Cockburn Sound.

- Acidic or alkaline effluents from the water treatment plant will be neutralized in a small holding pond before being pumped into the main holding pond.

- Spent oil changed from machinery will be sold for reprocessing.

- Normal operating and maintenance procedures will require that any oil leaks be attended to immediately because of the possibility of damage to the equipment, fires and the hazard of slippery surfaces. Any spillages will be mopped up and cleaned up using standard techniques with dry absorbents and biodegradable solvents.

- There will be a separate sewerage system for any oily water which will allow any such water to be diverted to sumps for retention and skimming. Recovered oil will be removed by a truck and disposed of off-site and the clean water redirected to the main holding pond for neutralization.

6.4 Solid wastes

- The plant will normally produce minimal solid wastes. Septic systems will be provided for the sanitary system.

- Domestic solid waste will be disposed of to sanitary landfill to the satisfaction of the local authorities.

- The disposal of used catalysts will be as follows:

  - those that contain only non-toxic compounds, e.g. Fe_2O_3 or Al_2O_3, will be safely disposed of on any landfill site;

  - those containing a high proportion of recoverable metals, such as the nickel, platinum or copper-based catalysts, will be sold for their metal content;

  - those that cannot be sold for their metal content and that contain significant proportions of elements which can be toxic to the environment, such as chromium, will be disposed by approved means.

- The proponents will explore other options, including the possible use of spent catalysts in CSBP & Farmers Ltd's superphosphate mixtures to provide trace elements (Cu, Zn, Mo) required by plants and crops.

6.5 Noise

- Noise levels within the plant and at the plant boundaries will be in accordance with statutory requirements.

6.6 Monitoring

- Monitor bores will be installed between the production bores and the Nufarm contaminant plume to monitor the migration of the plume.

- Monitor bores will be installed to monitor the migration of the saltwater wedge to the west of the plant site.

- The concentration of anti-foulant (Alfloc 7348 for example) in the effluent will be checked periodically as part of the effluent monitoring programme.

- The groundwater abstracted for the plant process and cooling water will be regularly monitored for contaminants.

6.7 Reporting

- The proponents will make the results of any monitoring available to the relevant authorities.

7 OCCUPATIONAL HEALTH

7.1 General

- Occupational health issues will be addressed in detail in the design stage of the project.

7.2 Medical care

- On-site first aid facilities will be provided, together with support from CSBP & Farmers Ltd's Kwinana works facilities, which include the availability of an ambulance and an occupational health nurse during normal working hours.

- The proponents will liaise with all relevant local and State authorities in reviewing the design of medical and first aid procedures and facilities for the plant.

8 SAFETY

8.1 HAZOP study

- The final design of the plant will be subject to a full HAZOP study before commissioning of the plant, as will any subsequent changes to design before implementation. This will ensure that the safety standards set for the plant are adhered to and will minimize the likelihood of plant failure.

- The HAZOP study will meet the EPA's guidelines for HAZOP, as defined in Bulletin 278, May 1987.

- The results of the HAZOP study will be made available to the Department of Occupational Health, Safety and Welfare on request.

- Installation of new equipment and alterations to existing equipment will undergo a detailed check procedure on the design, including HAZOP analyses, prior to requisition.

8.2 Emergency procedures

- The emergency response plan for the plant will provide effective understanding of credible accident scenarios within the plant and adjacent facilities and the necessary responses in terms of plant and personnel. In view of the short time available for response, planning and training for immediate recognition of emergencies and evacuation to safe areas for toxic releases is essential. The plan will be implemented before start-up and tested at regular intervals.

- A plan for public safety and awareness will be developed, including procedures for emergencies.

- Apart from the emergency procedures worked out for the specific operational requirements, prior to the commissioning of the plant, procedures will be developed to cover the requirements of the site, including:

  - definition of emergencies (e.g. fire, gas leaks);
  - organization of emergency control teams;
  - escape routes and assembly points for personnel;
  - liaison requirements with local and State authorities, the State Energy Commission of Western Australia and the general public;
  - warnings to fire brigades, hospitals and the police.

- The proponents will liaise with all relevant public authorities, including the local Counter-Disaster Advisory Committee, and nearby industrial operators in the development of emergency procedures. Copies of the procedures will be made available to all bodies affected.

8.3 Fire protection

- A fire protection system will be incorporated in accordance with the requirements of the plant design and the Western Australian Fire Brigades Board.

- The fire protection system will be supplied from a separate tank and pumping system fed from the production bores, with back-up from the scheme water main. Permanent hydrants will be situated at selected locations around the plant, together with foam generators in areas of the plant where ammonia leaks could occur.

- All plant personnel will be trained in the appropriate fire-fighting techniques.

- The fire-fighting capability of CSBP & Farmers Ltd's Kwinana works, and the Kwinana Industries Mutual Aid Group, established by industrial operators in the Kwinana industrial area, will be available for emergency assistance.

8.4 Ship loading management plan

- The proponents intend to develop a management plan for ship loading with the Fremantle Port Authority. The plan will include:

  - definition of emergencies (e.g. fire, gas leaks);
  - organization of emergency control teams;
  - escape routes and assembly points for personnel;
  - liaison requirements with local and State authorities, the EPA and the general public in the event of an emergency;
  - procedure for warning fire brigades and hospitals;
  - management of vehicle access to the wharf during loading;
  - provision of breathing apparatus to anyone going onto the wharf during loading.

8.5 Auditing

- Regular safety audits of the plant will be undertaken.

8.6 Security

- Security around the plant will be ensured by the installation of chain-link boundary fences, with access to the plant via a single gatehouse and emergency exits.

- Security patrols of the plant will be carried out.

- During ship loading, the export pipeline will be regularly inspected.

8.7 Training

- All employees will be trained in the safe work practices and emergency procedures appropriate to the operation of the plant and handling of all associated materials.

- Plant operator training will be provided, based on the experience available to the proponents from their existing ammonia/urea establishments. Some personnel will have practical training in these plants.

- Maintenance and inspection procedures (including work permits) will be developed to protect maintenance workers and to prevent unsafe situations from developing.

- Operation manuals will be developed which outline how various situations are to be handled by operators.