Statement No.

MINISTER FOR THE ENVIRONMENT AND HERITAGE

000617

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

METHANOL PLANT AND PRODUCT EXPORT
WITHIN THE WITHNELL EAST INDUSTRIAL AREA AND DAMPIER PORT,
BURRUP PENINSULA

Proposal: The construction and operation of a nominal 1.05 million tonnes per annum methanol plant, desalination plant, utilities, pipelines and port load-out facilities in the Withnell East Industrial Area, Dampier Port and in infrastructure corridors, as documented in schedule 1 of this statement.

Proponent: Australian Methanol Company Pty Ltd

Proponent Address: Level 23, St Martin's Tower, 46 St George's Terrace, PERTH WA 6000

Assessment Number: 1438

Report of the Environmental Protection Authority: Bulletin 1075

The proposal referred to above may be implemented subject to the following conditions and procedures:

Procedural conditions

1 Implementation and Changes

1-1 The proponent shall implement the proposal as documented in schedule 1 of this statement subject to the conditions of this statement.

Published on

20 DEC 2002

29th FLOOR, ALLENDALE SQUARE, 77 ST. GEORGE'S TERRACE, PERTH 6000 TELEPHONE: (08) 9220 5050 FACSIMILE: (08) 9221 4665/8
E-MAIL: judy-edwards@dpc.wa.gov.au

1-2 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment and Heritage determines, on advice of the Environmental Protection Authority, is substantial, the proponent shall refer the matter to the Environmental Protection Authority.

1-3 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment and Heritage determines, on advice of the Environmental Protection Authority, is not substantial, the proponent may implement those changes upon receipt of written advice.

2 Proponent Commitments

2-1 The proponent shall implement the environmental management commitments documented in schedule 2 of this statement.

2-2 The proponent shall implement subsequent environmental management commitments which the proponent makes as part of the fulfilment of the conditions in this statement.

3 Proponent Nomination and Contact Details

3-1 The proponent for the time being nominated by the Minister for the Environment and Heritage under section 38(6) or (7) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal until such time as the Minister for the Environment and Heritage has exercised the Minister's power under section 38(7) of the Act to revoke the nomination of that proponent and nominate another person as the proponent for the proposal.

3-2 If the proponent wishes to relinquish the nomination, the proponent shall apply for the transfer of proponent and provide a letter with a copy of this statement endorsed by the proposed replacement proponent that the proposal will be carried out in accordance with this statement. Contact details and appropriate documentation on the capability of the proposed replacement proponent to carry out the proposal shall also be provided.

3-3 The nominated proponent shall notify the Department of Environmental Protection of any change of contact name and address within 60 days of such change.

4 Commencement and Time Limit of Approval

4-1 The proponent shall provide evidence to the Minister for the Environment and Heritage within five years of the date of this statement that the proposal has been substantially commenced or the approval granted in this statement shall lapse and be void.

Note: The Minister for the Environment and Heritage will determine any dispute as to whether the proposal has been substantially commenced.

4-2 The proponent shall make application for any extension of approval for the substantial commencement of the proposal beyond five years from the date of this statement to the Minister for the Environment and Heritage, prior to the expiration of the five-year period referred to in condition 4-1.

The application shall demonstrate that:

- the environmental factors of the proposal have not changed significantly;
- new, significant, environmental issues have not arisen; and
- all relevant government authorities have been consulted.

Note: The Minister for the Environment and Heritage may consider the grant of an extension of the time limit of approval not exceeding five years for the substantial commencement of the proposal.

Environmental conditions

5 Compliance Audit and Performance Review

5-1 The proponent shall prepare an audit program in consultation with, and submit compliance reports to, the Department of Environmental Protection which address:

- the implementation of the proposal as defined in schedule 1 of this statement;
- evidence of compliance with the conditions and commitments; and
- the performance of the environmental management plans and programs.

Note: Under sections 48(1) and 47(2) of the *Environmental Protection Act 1986*, the Chief Executive Officer of the Department of Environmental Protection is empowered to audit the compliance of the proponent with the statement and should directly receive the compliance documentation, including environmental management plans, related to the conditions, procedures and commitments contained in this statement.

Usually, the Department of Environmental Protection prepares an audit table which can be utilised by the proponent, if required, to prepare an audit program to ensure that the proposal is implemented as required. The Chief Executive Officer is responsible for the preparation of written advice to the proponent, which is signed off by either the Minister or, under an endorsed condition clearance process, a delegate within the Environmental Protection Authority or the Department of Environmental Protection that the requirements have been met.

5-2 The proponent shall submit a performance review report every six years after the start of the operations phase, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority, which addresses:

1 the major environmental issues associated with the project; the targets for those issues; the methodologies used to achieve these; and the key indicators of environmental performance measured against those targets;

2 the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best available technology where practicable;

3 significant improvements gained in environmental management, including the use of external peer reviews;

4 stakeholder and community consultation about environmental performance and the outcomes of that consultation, including a report of any on-going concerns being expressed; and

5 the proposed environmental targets over the next six years, including improvements in technology and management processes.

6 Vegetation

6-1 Prior to submitting a Works Approval application for the methanol plant, the proponent shall determine the number and distribution of identifiable Priority Species which will be impacted by construction, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

6-2 At the first opportunity when appropriate conditions prevail, the proponent shall:

1 complete a wet season flora survey; and
2 update the analysis of the results of the survey in a regional context if the results of the wet season survey are significantly different to those predicted,

to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

Note: In the preparation of advice to the Minister for the Environment and Heritage, the Environmental Protection Authority expects to obtain the advice of the Department of Conservation and Land Management.

7 Brine and Wastewater Discharge

7-1 Prior to submitting a Works Approval application for the methanol plant, the proponent shall:

1 characterise the physico-chemical composition and flow rates of all wastewater streams within the site, including the desalination plant;
2 determine, for all non-negligible contaminants and nutrients, the total annual loads of contaminants and nutrients in the combined brine and wastewater discharge exiting the site; and
3 determine, for normal and worst-case conditions, the concentrations of contaminants and nutrients (for agreed averaging periods) in the combined brine and wastewater discharge exiting the site,

to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

7-2 Prior to submitting a Works Approval application for the methanol plant, the proponent shall demonstrate that the brine and wastewater discharge will meet "best practicable technology" and waste minimisation principles for contaminants and nutrients, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

7-3 Prior to submitting a Works Approval application for the methanol plant, the proponent shall design, and subsequently operate, plant and equipment on the site such that:

1. the contaminant concentrations in the combined brine and wastewater effluent from the site, just prior to entry to the multi-user brine and wastewater discharge system, meet (in order of preference):

   - the ANZECC/ARMCANZ (2000) 99% species protection level; or
   - the ANZECC/ARMCANZ (2000) 99% species protection level at the edge of the approved mixing zone (currently 0.01 square kilometre), without any subsidy or pre-dilution from the main brine return line; or
   - other acceptable limits, if the Environmental Protection Authority determines the regional background concentration of a given contaminant in seawater to be significant;

2. mass balances and inventories of toxicants (i.e. catalysts and process chemicals) can be maintained throughout the life of the plant so that their fate can be traced; and

3. the load of nutrients causes no resultant detectable change beyond natural variation in the diversity of the species and biological communities and abundance/biomass of marine life, beyond the designated mixing zone,

to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

7-4 Prior to submitting a Works Approval application for the methanol plant, the proponent shall conduct "whole-of-effluent" toxicological studies on a *simulated effluent*, including treatment chemicals, or provide acceptable alternative information such as risk assessment, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

These studies shall be consistent with ANZECC requirements.

7-5 Within three months following commissioning and stabilizing of the plant operations, the proponent shall conduct an analysis demonstrating that effluent properties are substantially consistent with predictions, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

7-6 In the event that effluent properties are not substantially consistent with predictions, the proponent shall conduct toxicological studies on the *actual effluent*, or provide acceptable alternative information such as risk assessment, to the timing and other requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

These studies and/or information shall be consistent with ANZECC requirements.

7-7 In the event that the findings resulting from condition 7-6 indicate that the effluent poses a significant risk to the diversity of the species and biological communities and abundance/biomass of marine life, the proponent shall modify the brine and wastewater effluent to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

8 Surface and Stormwater

8-1 Prior to submitting a Works Approval application for the methanol plant, the proponent shall demonstrate that practicable stormwater and surface water management systems have been designed to prevent significant off-site impacts, including:

1 impact on mangroves or vegetation downstream of the plant site;
2 reduction of the quality or quantity of water or sedimentation of semi-permanent rock pools located on drainage lines affected by the plant construction;
3 erosion of drainage lines or flooding of vegetation; and
4 significant contamination of soil or groundwater downstream of the plant site,

to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

8-2 Prior to submitting a Works Approval application for the methanol plant, the proponent shall design, and subsequently, implement a monitoring programme to include:

1 monitoring to establish baseline conditions for water quality and vegetation condition, as practicable;
2 monitoring the quality of surface water leaving the site; and
3 monitoring of vegetation, rock pools, drainage lines and groundwater impacted by the surface and stormwater associated with the plant site,

to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

9 Air Emissions

9-1 Prior to submitting a Works Approval application for the methanol plant, the proponent shall:

1 confirm the engineering design details for the emission of gaseous pollutants, including stack heights, stack diameters, exit temperatures and exit velocities;

2 estimate the concentration of oxides of nitrogen, and other major gaseous pollutants, under normal and worst-case conditions, including start-up and upset emissions;

3 demonstrate best practicable oxides of nitrogen control and measures to reduce oxides of nitrogen emissions from the plant; and

4 remodel the oxides of nitrogen emissions to determine building wake effects and verify previous predictions,

to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

Note: The Environmental Protection Authority requires stack heights to be such that the downwash of emissions in the lee of buildings or other structures is practicably minimised or preferably avoided.

9-2 At least three months prior to submitting a Works Approval application for the methanol plant, the proponent shall provide evidence of its intention to participate in a collaborative monitoring programme, and subsequently participate in the programme, or alternatively prepare and subsequently implement a monitoring programme to identify the impacts of acid gas emissions on the surrounding areas, to include:

1 Identification of preliminary warning indicators and "trigger levels" to indicate impacts of acid gases on systems, including soil condition, rockpools, vegetation and mangal communities, and petroglyphs;
2 Design and implementation of a monitoring programme to establish baseline conditions prior to commissioning of the plant; and

3 Identification of practicable management or contingency measures, as it relates to this proposal, to be implemented in the event that the "trigger levels" (point one above) are exceeded,

to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

9-3 Prior to submitting a Works Approval application for the methanol plant, the proponent shall investigate and implement a practicable management program to:

1. determine the extent of the area of impact and likely deposition rate of salt water mist from the cooling towers;
2. determine the naturally occurring background levels of salt water mist in air;
3. determine the tolerance of vegetation in the area to salt at the likely deposition rate;
4. demonstrate that all practicable measures have been taken to prevent vegetation within the Conservation, Heritage and Recreation Area being significantly adversely impacted by salt water mist; and
5. demonstrate that best practicable technology has been used to minimise the impact of salt water mist on vegetation within the industrial area,

to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

10 Greenhouse Gas Emissions

10-1 Prior to commencement of construction of the processing plant, the proponent shall prepare a Greenhouse Gas Emissions Management Plan to:

- ensure that "greenhouse gas" emissions from the project are adequately addressed and best available efficient technologies are used to minimise total net "greenhouse gas" emissions and/or "greenhouse gas" emissions per unit of product; and

- mitigate "greenhouse gas" emissions in accordance with the Framework Convention on Climate Change 1992, and consistent with the National Greenhouse Strategy;

to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

This Plan shall include:

1 up-to-date calculation of the "greenhouse gas" emissions associated with the proposal, as indicated in "*Minimising Greenhouse Gas Emissions, Guidance for the Assessment of Environmental Factors, No. 12*", published by the Environmental Protection Authority;

2 specific measures to minimise the total net "greenhouse gas" emissions and/or the "greenhouse gas" emissions per unit of product associated with the proposal;

3 monitoring of "greenhouse gas" emissions;

4 up-to-date estimation of the "greenhouse gas" efficiency of the project (per unit of product and/or other agreed performance indicators) and comparison with the efficiencies of other comparable projects producing a similar product;

5 analysis of the extent to which the proposal meets the requirements of the National Greenhouse Strategy using a combination of:

- "no regrets" measures;
- "beyond no regrets" measures;
- land use change or forestry offsets; and
- international flexibility mechanisms; and

6 a target set by the proponent for the reduction of total net "greenhouse gas" emissions and/or "greenhouse gas" emissions per unit of product over time, and annual reporting of progress made in achieving this target.

Note: In Part 5 above, the following definitions apply:

(1) "no regrets" measures are those that can be implemented by a proponent which are effectively cost-neutral and provide the proponent with returns in savings which offset the initial capital expenditure that may be incurred; and

(2) "beyond no regrets" measures are those that can be implemented by a proponent which involve some additional cost that is not expected to be recovered.

10-2 The proponent shall implement the Greenhouse Gas Emissions Management Plan required by condition 10-1, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

10-3 The proponent shall make the Greenhouse Gas Emissions Management Plan, required by condition 10-1, publicly available, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

11 Noise

11-1 Prior to submitting a Works Approval application for the methanol plant, the proponent shall prepare a Noise Management Plan to:

- minimise to the extent practicable the impacts on the amenity of recreational areas; and
- ensure compliance with prescribed standards,

in relation to noise resulting from activities associated with the proposal, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

This Plan shall include detailed descriptions of:

1 the acoustical model of the plant;
2 best practicable measures to minimise noise emissions;
3 operating procedures to be adopted for particular routine activities to minimise noise impacts on amenity at recreational areas;
4 the noise monitoring programme; and
5 the complaint management procedure.

11-2 The proponent shall implement the Noise Management Plan required by condition 11-1 to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

11-3 The proponent shall make the Noise Management Plan required by condition 11-1 publicly available to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

11-4 Prior to construction, the proponent shall employ a mutually agreed independent acoustical engineer to:

1 review the design of the plant;
2 review the Noise Management Plan, required by condition 11-1; and
3 demonstrate that the design and Plan incorporate best practicable measures to:
   - minimise the impacts on the amenity of recreational areas; and
   - ensure compliance with prescribed standards,

to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

12 Pipeline Construction and Operation

12-1 Prior to submitting a Works Approval application for the methanol plant, the proponent shall prepare an Environmental Management Plan for the construction and operation of the pipelines, to include:

1 the position of the pipelines within an approved infrastructure corridor;
2 risk study where appropriate;
3 design of the pipelines including measures to prevent and detect leakage;
4 design of spill containment measures where appropriate;
5 Vegetation and Flora, Fauna Protection, Drainage and Groundwater Management, Noise and Vibration, Construction Spills Management and Aboriginal Heritage Site Management Plans for construction and management where appropriate; and
6 operational procedures and safeguards,

to the requirements of the Minister for the Environment and Heritage on advice of Environmental Protection Authority.

Note: In the preparation of advice to the Minister for the Environment and Heritage, the Environmental Protection Authority expects to obtain the advice of the Department of Mineral and Petroleum Resources.

12-2 The proponent shall implement the Environmental Management Plan for the construction and operation of the pipelines required by condition 12-1, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

12-3 The proponent shall make the Environmental Management Plan for the construction and operation of the pipelines required by condition 12-1 publicly available, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

13 Work Practices

13-1 Prior to commencement of construction, the proponent shall submit a written prescription for contractor work practices covering plant and pipeline construction and operation, to ensure that work practices are carried out at the level of international best practice, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

13-2 The proponent shall ensure that the prescription of work practices required by condition 13-1 is implemented, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

14 Decommissioning Plans

14-1 Prior to construction, the proponent shall prepare, and subsequently implement, a Preliminary Decommissioning Plan, which provides the framework to ensure that the site is left in an environmentally acceptable condition to the requirements of the

Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

The Preliminary Decommissioning Plan shall address:

1 rationale for the siting and design of plant and infrastructure as relevant to environmental protection, and conceptual plans for the removal or, if appropriate, retention of plant and infrastructure;

2 long-term management of ground and surface water systems affected by the plant;

3 a conceptual rehabilitation plan for all disturbed areas and a description of a process to agree on the end land use(s) with all stakeholders;

4 a conceptual plan for a care and maintenance phase; and

5 management of noxious materials to avoid the creation of contaminated areas.

14-2 At least 12 months prior to the anticipated date of closure, or at a time agreed with the Environmental Protection Authority, the proponent shall prepare a Final Decommissioning Plan designed to ensure that the site is left in an environmentally acceptable condition to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

The Final Decommissioning Plan shall address:

1 removal or, if appropriate, retention of plant and infrastructure in consultation with relevant stakeholders;

2 long-term management of ground and surface water systems affected by the plant;

3 rehabilitation of all disturbed areas to a standard suitable for the agreed new land use(s); and

4 identification of contaminated areas, including provision of evidence of notification and proposed management measures to relevant statutory authorities.

14-3 The proponent shall implement the Final Decommissioning Plan required by condition 14-2 until such time as the Minister for the Environment and Heritage determines, on advice of the Environmental Protection Authority, that the proponent's decommissioning responsibilities have been fulfilled.

14-4 The proponent shall make the Final Decommissioning Plan required by condition 14-2 publicly available, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

Procedures

1 Where a condition states "to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority", the Chief Executive Officer of the Department of Environmental Protection will obtain that advice for the preparation of written advice to the proponent.

2 The Environmental Protection Authority may seek advice from other agencies, as required, in order to provide its advice to the Chief Executive Officer of the Department of Environmental Protection.

Notes

1 The Minister for the Environment and Heritage will determine any dispute between the proponent and the Environmental Protection Authority or the Department of Environmental Protection over the fulfilment of the requirements of the conditions.

2 The proponent is required to apply for a Works Approval and Licence for this project under the provisions of Part V of the *Environmental Protection Act 1986*.

Dr Judy Edwards MLA
MINISTER FOR THE ENVIRONMENT AND HERITAGE

20 DEC 2002

Schedule 1

The Proposal (Assessment No. 1438)

The construction and operation of a methanol plant of one million tonnes per annum (Mtpa) nominal capacity, at Withnell East industrial area on the Burrup Peninsula (Figure 1). The plant will use Lurgi Oel Gas Chemie GmbH technology. The proposal includes the installation and operation of a gas supply pipeline, product pipeline, seawater supply pipeline and wastewater discharge pipeline to be situated in infrastructure corridors for which the Department of Mineral and Petroleum Resources will be proponent.

The main components of the plant will be:

- methanol production plant
- plant infrastructure, including air separation unit, seawater and sweetwater cooling systems, product storage tanks, flare system, and
- utilities, including power generation, a mechanical vapour compression desalination plant, water treatment plant, sanitary wastewater treatment plant.

The proposal includes shiploading operations at the Port of Dampier where methanol tanker ships will be loaded. The proposal does not include any changes to the Port or wharves, which will be sought by the Dampier Port Authority, if necessary.

The plant "footprint" will occupy approximately 16 hectares of the 35 hectare site (Figure 2). This proposal will not impact on the vegetation community identified in the Public Environmental Review document as EvTeCv. The communities identified as AbCwTe and TrTe(Ta) will not be impacted by more than 0.08 hectares and 0.03 hectares, respectively.

Reformer and boiler burners will be of low oxides of nitrogen design.

All practicable "no regrets" measures for the reduction of greenhouse gases will be included in the plant design.

The shiploading system will include a vapour recovery system.

The key proposal characteristics are presented in Table 1.

Note: The infrastructure corridors are not included as part of this proposal, however, the pipelines within corridors are part of the proposal.

Table 1 – Key Proposal Characteristics (Assessment No. 1438)

Element	Description
Project life	Over 25 years
Complex capacity	Up to 1.05 Mt/a of methanol from one production plant (nominal)
Lease area	Approx. 35 ha
Site area	Approx. 16 ha
Complex facilities Process plant	 1 x 3,000 tonnes per day (tpd) methanol production plant
Air separation unit	1 x 1,240 tpd of oxygen from cryogenic air separation unit
Product storage	2 x 47,708 t pure methanol storage tanks (each 60,000 m^3 capacity), within bunds 2 x 1,350 t pure methanol intermediate storage tanks 1 x 1,350 t raw methanol tank
Power generation	Onsite electrical power generation will be via 8 MW steam turbine generator (primary) and 600 kVA emergency diesel power generator
Water systems	Supply of up to 36 ML/day of raw seawater for operation of the seawater cooling (tower) system and for operation of the desalination plant. Desalination plant using mechanical vapour compression to provide up to 1.7 ML/day of fresh water for steam systems, potable water and sweet water cooling system make-up.
Steam generation	Three-level steam system (110 bar, 38 bar and 5 bar) with high pressure steam generated from heat recovery from the process and auxiliary boiler, and medium pressure steam generated from heat recovery from the process.
Utilities	Instrument and plant air systems. Wastewater systems for process, contaminated storm and domestic water. Nitrogen reticulation for inerting and purging purposes from the air separation unit.
Support facilities	Administration, maintenance, laboratory, emergency response & control room facilities.
Complex operation	24 hours/day for 7 days/week for 52 weeks/year
Complex reliability	The plant will require a shutdown for catalyst replacement and predictive and preventative maintenance once each 3-4 years for approx. 21 days. Additional shutdowns for process upsets and mechanical breakdowns are allowed for, to achieve an average of 350 operating days per year.
Natural gas pipeline	200 mm nominal diameter pipeline from the Dampier to Bunbury gas export pipeline to the facility boundary.
Product export pipeline	500 mm nominal diameter pipeline from the plant tank farm to the ship loading facilities.
Seawater pipeline	From Water Corporation main pipeline to the facility boundary. Nominal 500mm diameter, subject to detail design verification.
Brine return pipeline	From the facility boundary to Water Corporation main brine return pipeline. Nominal 400mm diameter, subject to detail design verification.
Port facilities	One berth, provided by the Dampier Port Authority
Complex efficiency	Approx. 34.56 GJ/t of methanol [High Heating Value (hhv)]
Construction period	Approx 23 months
Feed gas	Approx 4.33 TJ/h (approx 65 tph) from the Dampier to Bunbury gas pipeline.
Catalysts	Cobalt, nickel, molybdenum zinc and copper compounds.

Table 1 – continued.

Approximate gaseous emissions under normal operations	NOx: Up to 48 kg/h or 403 t/a, using low NO_X burners CO: Up to 9 kg/h or 76 t/a VOC: Up to 1 kg/h or 8.4 t/a. SO_X: Up to 0.25 kg/h or 2.1 t/a. CO_2: Up to 0.404 kg/kg methanol or 442,550 t/a
Wastewater discharge Brine Cooling tower blowdown Process Demineralisation column regeneration	 Up to 9.0 ML/day from desalination plant to brine return line. Up to 14.6 ML/day from the cooling tower to brine return line. Up to 130 KL/day from the methanol production plant to evaporation pond. Approx 100kL/day
Total seawater return	Up to 24 ML/day to brine return line.
Domestic wastewater	Up to 7 KL/day. To be irrigated on landscaped areas of the plant or disposed in an alternative manner in accordance with DEP requirements
Stormwater	The plant will have separate contaminated and clean stormwater systems. Run-off from areas designated potentially contaminated will be directed to an evaporation pond. Run-off from areas designated uncontaminated will be collected via a drainage system that directs water through a corrugated plate interceptor prior to release into natural watercourses. Stormwater accumulated in the bunded areas of the storage tanks will be analysed prior to discharge. If contaminated, it is to be directed to the evaporation pond and if clean, to the clean stormwater system.
Wastewater specification	Brine up to 55,000 mg/L (TDS), temperature to be within 2° C of 24-hour ambient seawater temperature for 80% of the time with a maximum exceedence of 5°C and zero free biocides. Water treatment chemicals to be agreed with appropriate authorities. 6-9 (pH), zero (free chlorine), 28 mg/L (TSS) Up to 2 tpa (0.23 mg/L) ammonia.
Stormwater a	Up to 10 mg/L (TDS).
Solid wastes	Collected by contractor for recycle/reuse: batteries, paper, cardboard, scrap metal. Collected by contractor for disposal: waste oil, sludge from evaporation pond. Returned to vendor: catalyst waste. Landfill: fluorescent tubes, HID lamps, general refuse, ceramic fibres. Recycled: glass, plastics and chemical Composted: organic wastes
Noise	To be further considered by acoustical engineer during engineering design.
Risk	50 in a million risk contour within site boundary 10 in a million risk contour to extend no more than 100m north and south of plant boundary

Abbreviations - see over.

Table 1 – continued.

Abbreviations

°C - degrees centigrade
GJ/t - gigajoules per tonne
ha - hectares
kL - kilolitres
kVA - kilovolt amps
mg/L - milligrams per litre
ML - million litres
mm - millimetres
Mt/a - million tonnes per annum
MW - megawatts
t - tonnes
t/a - tonnes per annum
TJ/h - terajoules per hour
tpd - tonnes per day

CO - carbon monoxide
CO_2 - carbon dioxide
NOx - oxides of nitrogen
SOx - oxides of sulphur
VOC - volatile organic compounds

DEP - Department of Environmental Protection
HID - high intensity discharge
TDS - total dissolved solids
TSS - total suspended solids

Figures (attached)

Figure 1 - Location plan.
Figure 2 - Site layout plan
Figure 3 - Process flow diagram
Figure 4 - Water systems flow diagram

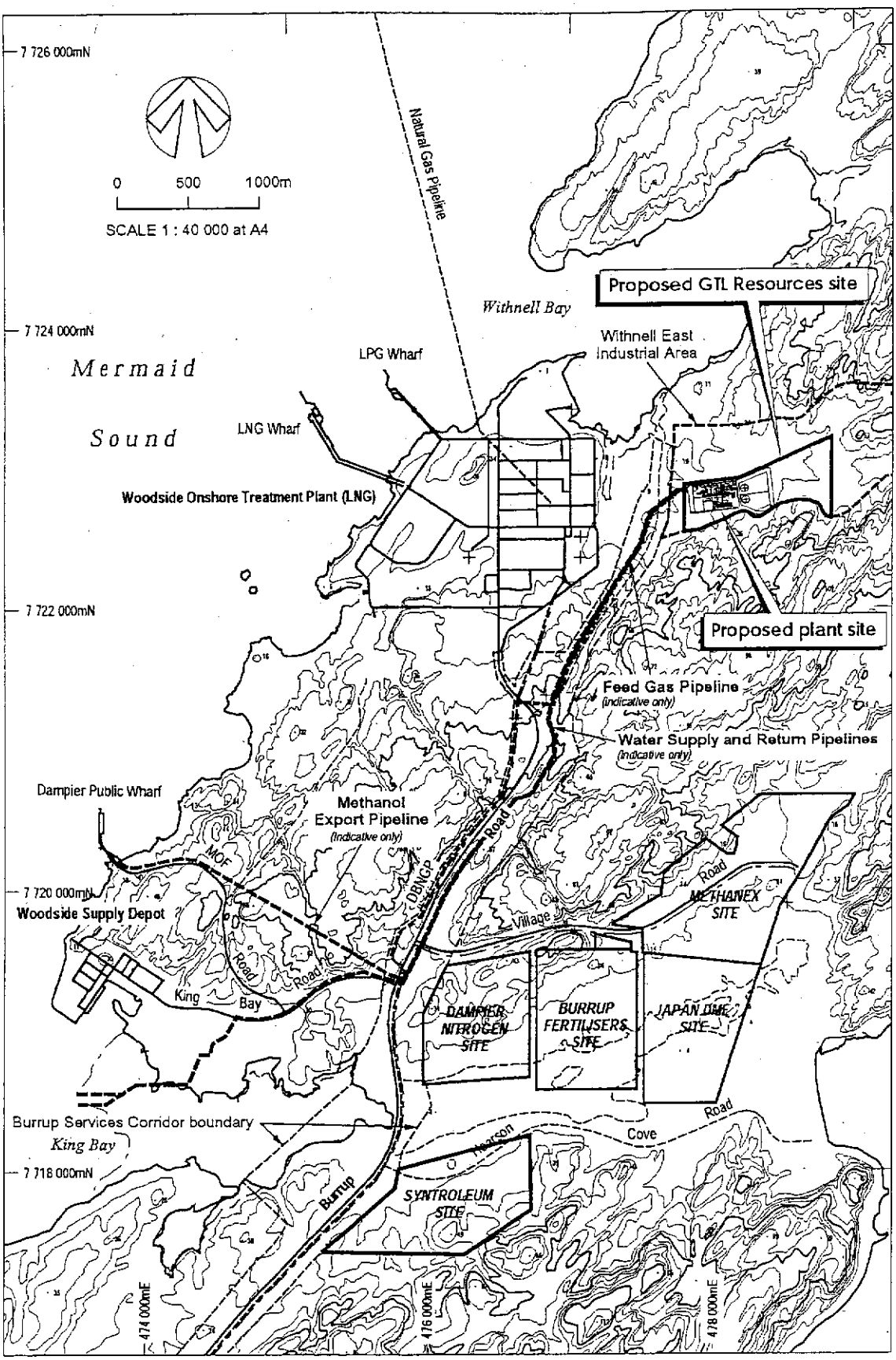

Figure 1: Location plan. (Source: URS, 2002, amended Figure 2)

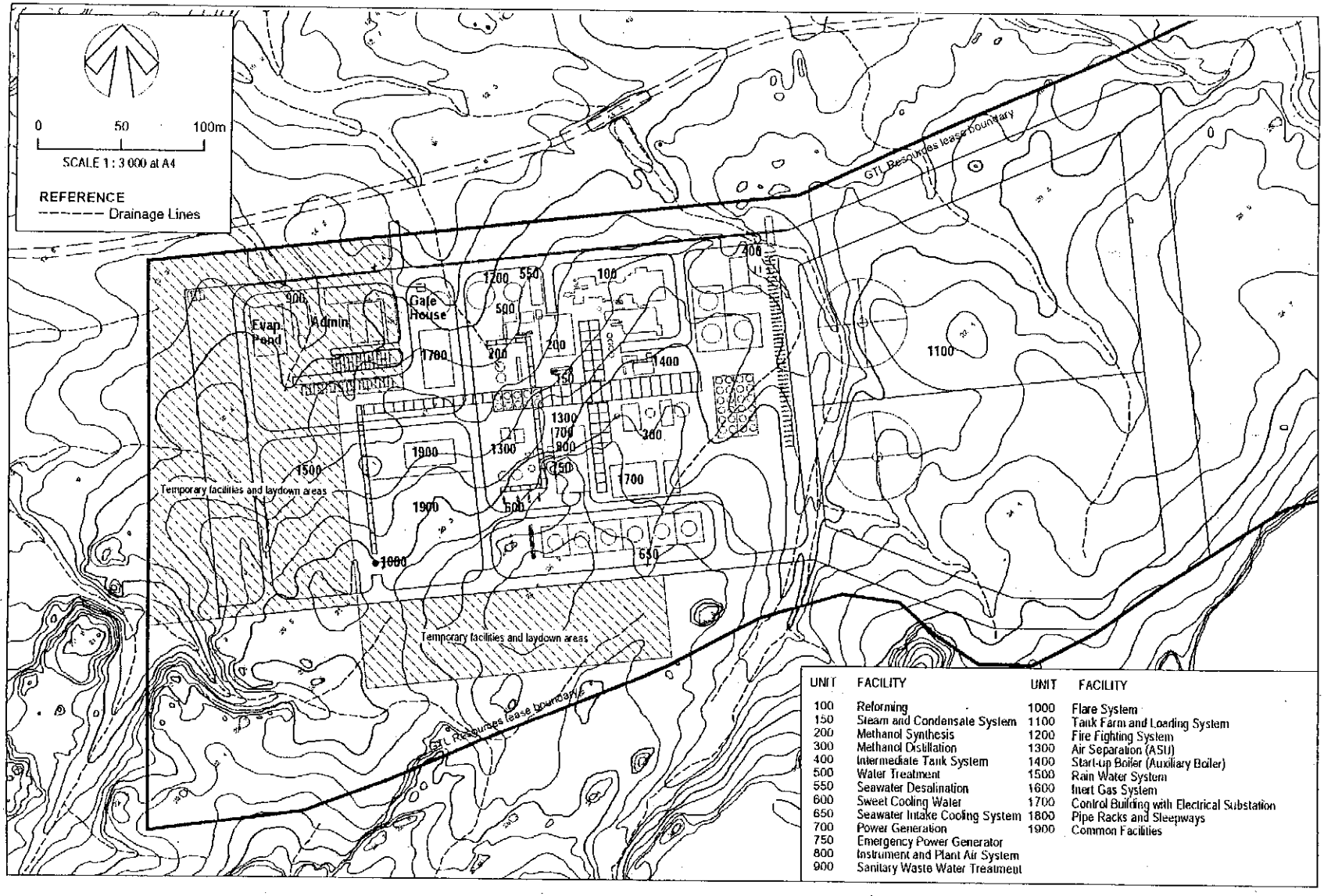

Figure 2: Site layout plan (Source: URS, 2002, amended Figure 4)

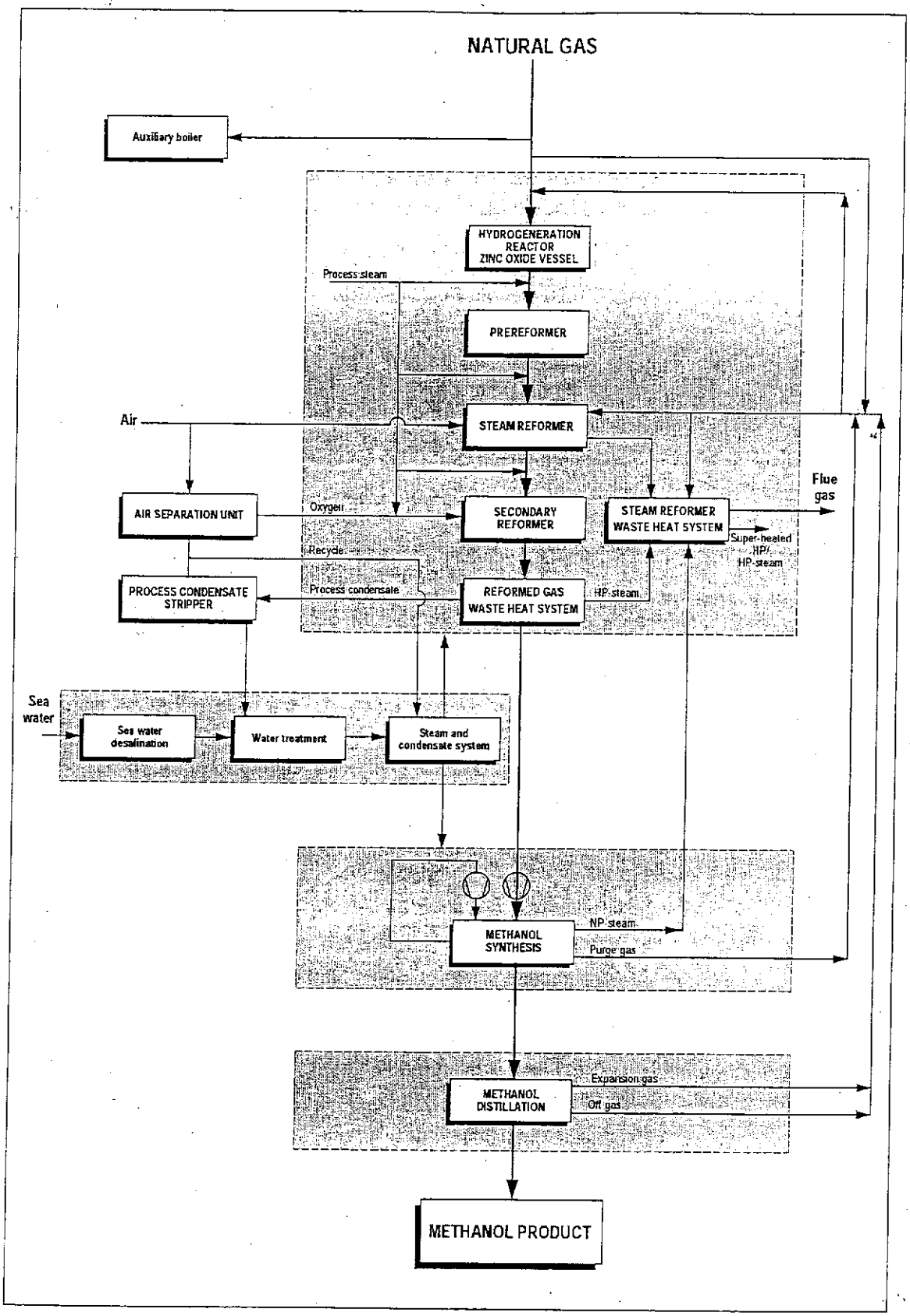

Figure 3: Process flow diagram (Source: URS,2002, amended Figure 6)

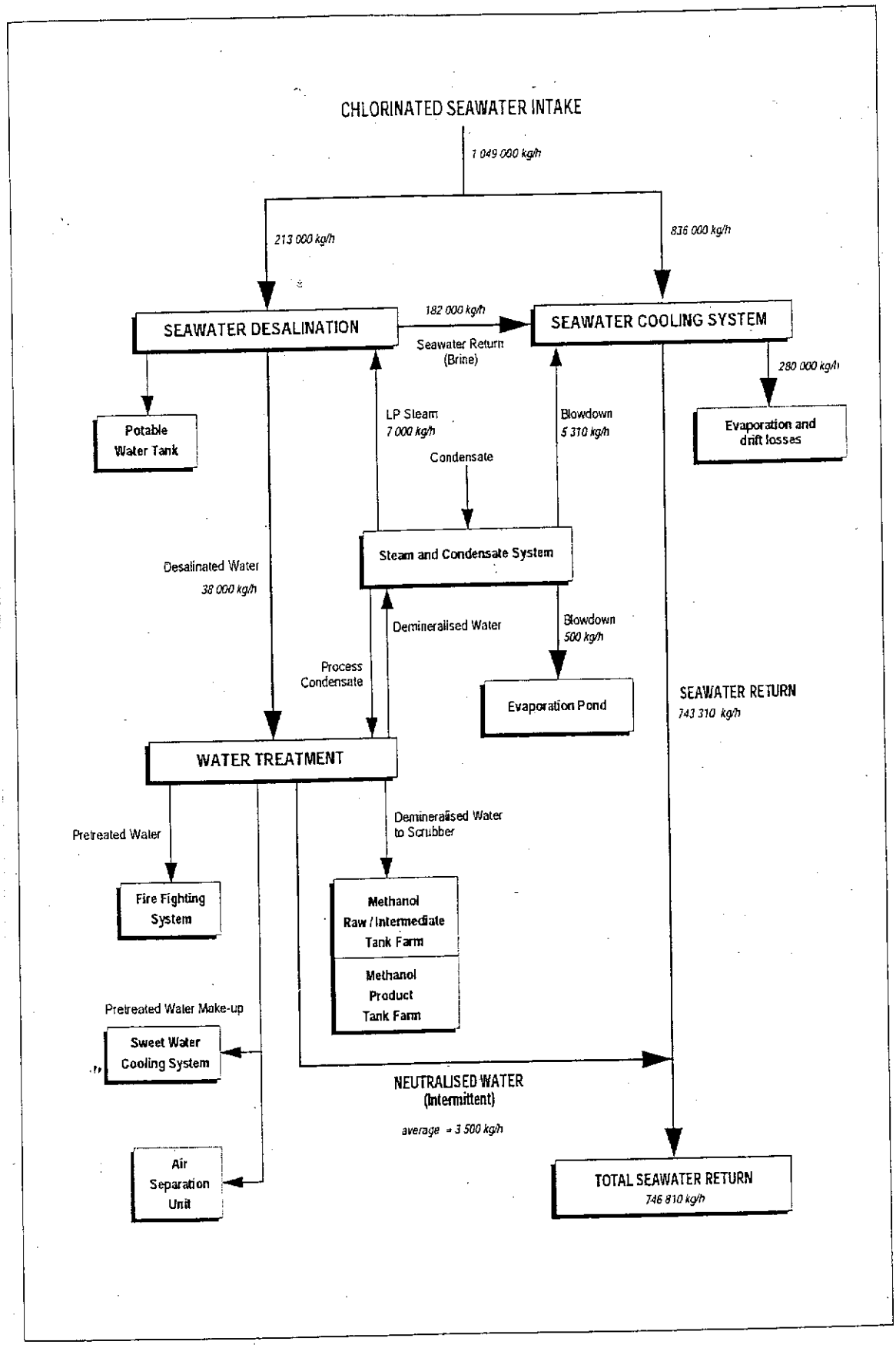

Figure 4: Water systems flow diagram (Source: URS, 2002, Figure 7)

Schedule 2

Proponent's Environmental Management Commitments

19 December 2002

METHANOL PLANT & PRODUCT EXPORT
WITHIN THE WITHNELL EAST INDUSTRIAL AREA
& DAMPIER PORT
BURRUP PENINSULA

(Assessment No. 1438)

Australian Methanol Company Pty Ltd

PROPONENT'S ENVIRONMENTAL MANAGEMENT COMMITMENTS – ASSESSMENT NO. 1438 - 19 DECEMBER 2002

No.	Topic	Action	Objective	Timing	Advice
1	Atmospheric Emissions	• Confirm the estimated concentrations and loads of gaseous emissions; and • Demonstrate that best practicable technology is being applied to reduce pollutants in atmospheric emissions.	To more accurately define the plant design details and emissions characteristics.	During detail design, prior to submitting Works Approval application	
2	Greenhouse Gases	Incorporate in the plant design 'no regrets' measures, including: • efficient reforming process; • recovery of waste heat; • no fugitive emissions or flaring; • steam turbine drives; • power recovery turbines; and • self-contained utility systems.	To minimise greenhouse gas emissions in absolute terms and to reduce emissions per unit product to as low as reasonably practicable.	During detail design	Australian Greenhouse Office
3	Risk Assessment	• Incorporate appropriate risk and hazard reduction measures in the plant design; and • Undertake a Quantitative Risk Assessment, based upon final plant design, to assess all risks and hazards associated with plant operation and product export to the satisfaction of MPR.	To ensure all risks and hazards are reduced to as low as reasonably practicable.	During detail design Prior to commissioning	MPR
4	Construction Environmental Management Programme	1) Develop a Construction Environmental Management Programme comprised of a series of management plans including: • Vegetation and Flora Management Plan (including Weeds) (commitment 5); • Fauna Management Plan (commitment 6); • Erosion and Surface Water Management Plan (commitment 7); • Dust Management Plan (commitment 8); • Noise Management Plan (commitment 9); • Solid Waste Management Plan (commitment 10); • Hazardous Materials Management Plan (commitment 12); • Cultural Heritage Plan (commitment 11); and • Safety and Emergency Management & Response Plan (including Cyclone Contingency Plan and Traffic Management Plan) (commitment 12). 2) Implement the Construction Environmental Management Programme.	To manage all relevant environmental factors associated with the construction phase of the project.	Prior to construction Prior to or during construction, as appropriate	CALM Mineral and Petroleum Resources WA Museum Commissioner of Soil & Land Conservation Shire of Roebourne Shire of Roebourne

No.	Topic	Action	Objective	Timing	Advice
5	Vegetation and Flora (Construction)	1) Prepare a Vegetation and Flora Management Plan addressing: • conduct of an additional vegetation/flora survey of the lease area and surrounding area (plant site and laydown areas will only be included if there is sufficient rainfall for seed germination prior to commencement of construction)*; • locations of vegetation communities and identification of areas not to be disturbed, through optimisation of plant layout; • site clearance procedures; • procedures for rehabilitating areas of temporary disturbance; • seed collection of any prominent flora species present, including Priority Flora species, to ensure the availability of species for rehabilitation; • germination trials, with a particular focus on the Priority 1 species *Terminalia supranitifolia*; • restoration of Priority Flora species disturbed by the project;and • best practice weed management procedures. 2) Implement the Vegetation and Flora Management Plan.	To manage construction works to minimise disturbance to significant vegetation communities and priority flora. To confirm actual rarity of vegetation associations currently defined as threatened in the Withnell East industrial area. To maintain the abundance, species diversity, geographic distribution and productivity of vegetation communities. To prevent the spread of weeds and the introduction of new weed species.	Prior to construction *At earliest opportunity following wet season rains Prior to or during construction, as appropriate	CALM
6	Fauna (Construction)	1) Prepare a Terrestrial Fauna Management Plan that includes: • results of an additional survey to further investigate the occurrence of Priority Fauna species (which, if required, will be updated on a regular basis)*; • ensuring physical disturbance is kept within designated areas; • incorporating drainage design features aimed at maintaining water flows to major drainage lines; • progressive rehabilitation of disturbed sites to maximise fauna habitat; • establishment of procedures, monitoring requirements, workforce training and responsibilities to minimise disturbance of significant terrestrial fauna; • support for collaborative research programmes investigating the presence of the Pilbara Olive Python on the Burrup Peninsula*; • CALM requirements regarding the Rock Wallaby Protection Programme*. 2) Implement the Terrestrial Fauna Management Plan.	To maintain the abundance, species diversity and geographical distribution of terrestrial fauna. To protect Specially Protected (Threatened) Fauna, consistent with the provisions of the *Wildlife Conservation Act 1950*. To protect fauna listed on the Schedules of the *EPBC Act*. To undertake fauna management actions in agreement with CALM.	Prior to construction *Prior to construction should conditions be favourable and ongoing (if required). * Prior to construction and ongoing. * Prior to construction and ongoing. Prior to and during construction	CALM

No.	Topic	Action	Objective	Timing	Advice
7	Surface Water (Construction)	1) Prepare a comprehensive Erosion and Surface Water Management Plan, which addresses the following: • vegetation clearing and stockpiling; • diversion of drainage lines; • surface water management and monitoring programme; and • stormwater management. 2) Implement the Erosion and Surface Water Management Plan.	To minimise erosion and impacts on downstream environments	Prior to construction During construction	Commissioner of Soil & Land Conservation Water and Rivers Commission Shire of Roebourne Shire of Roebourne
8	Dust (Construction)	1) Prepare a Dust Management Plan, which includes measures such as: • the use of water sprays to wet the site during windy conditions; • the use of speed limits to minimise dust generated by vehicle movements; • the use of minimum drop heights when loading and unloading soils and other excavated materials; and • minimise areas of disturbed, exposed soils. 2) Implement the Dust Management Plan.	To minimise environmental or human health problem or significantly impact on amenity.	Prior to construction During construction	Commissioner of Soil & Land Conservation Shire of Roebourne
9	Noise (Construction)	1) Prepare a Noise Management Plan for construction activities to minimise noise generation, including: • the use of low noise equipment where practicable; • use of silencers where necessary; and • noise monitoring and reporting. 2) Implement the Noise Management Plan.	To minimise construction noise emissions and comply with Noise Regulations.	Prior to construction During construction	Shire of Roebourne Shire of Roebourne

No.	Topic	Action	Objective	Timing	Advice
10	Solid Waste (Construction)	1) Prepare a Solid Waste Management Plan, including the following management measures: • Recyclable wastes will be periodically removed by a contractor; • General refuse (domestic and industrial solid waste) and putrescible wastes will be disposed of at a Karratha Class II landfill; and • No wastes will be burned on site. 2) Implement the Solid Waste Management Plan.	To minimise potential contamination to the receiving environment.	Prior to construction During construction	Shire of Roebourne Shire of Roebourne
11	Aboriginal Heritage (Construction)	1) Prepare an Aboriginal Cultural and Heritage Management Plan addressing: • completion of archaeological and ethnographical surveys of the project site; • development of a management strategy for any known heritage sites susceptible to disturbance during construction; • development of a management strategy for any presently unrecorded sites uncovered during construction; and • provide cultural awareness training to the construction workforce. 2) Implement the Aboriginal Cultural and Heritage Management Plan.	To protect known heritage sites from inadvertent damage or preserve the items of significance (e.g. petroglyphs) at an appropriate alternative location. To identify any unrecorded sites of significance to local Aboriginal groups. To minimise disturbance to areas of Aboriginal cultural significance. To increase personnel awareness of any Aboriginal sites of significance that may be uncovered during construction.	Prior to construction During construction	Department of Indigenous Affairs Appropriate Aboriginal Groups Department of Indigenous Affairs

No.	Topic	Action	Objective	Timing	Advice
12	Safety (Construction)	1) Prepare Safety and Emergency Management & Response Plans to address: • management of hazardous materials; • traffic management; • fire management; and • cyclone procedures. 2) Implement the Safety and Emergency Management & Response Plans.	To ensure that the risk to public safety and the environment is as low as reasonably practicable and to minimise the potential creation of hazardous working environments.	Prior to construction During construction	Shire of Roebourne Main Roads Western Australia Fire and Emergency Services Authority MPR MPR Fire and Emergency Services Authority Shire of Roebourne
13	Operations Environmental Management Programme	1) Develop an Operations Environmental Management Programme comprised of a series of management plans including: • Greenhouse Gas Management Plan (commitment 14); • Atmospheric Emissions Management Plan (commitment 15); • Flora and Vegetation Management Plan (commitment 16); • Fauna Management Plan (commitment 17); • Noise Management Plan (commitment 18); • Liquid Waste Management Plan (commitment 19); • Solid Waste Management Plan (commitment 20); • Hazardous Materials Management Plan (including Methanol Spill Contingency Plan) (commitment 21); • Lighting Management Plan (commitment 22); and • Aboriginal Heritage Management Plan (commitment 23). 2) Implement the Operations Environmental Management Programme.	To manage all relevant environmental factors associated with the operation phase of the project.	Prior to commissioning During commissioning and operation	CALM MPR WA Museum Commissioner of Soil & Land Conservation Shire of Roebourne Dampier Port Authority Shire of Roebourne
14	Greenhouse Gases (Operations)	1) Develop a Greenhouse Gas Management Plan to include: • development and implementation of a framework agreement as part of joining the Greenhouse Challenge and the Australian Industry Greenhouse Network; • management of greenhouse gases through ongoing monitoring of emissions and implementation of practicable measures to reduce gas usage and reduce or mitigate emissions. This will be supported by accessing the results of research and development of the methanol process in order to improve efficiency (through avenues such as the Lurgi Methanol Club);	To participate in the national programme of managing greenhouse gas emissions with the aim of minimising emissions where practicable. To minimise greenhouse gas emissions to as low as practicable.	Prior to commissioning and during operation	Australian Greenhouse Office

No.	Topic	Action	Objective	Timing	Advice
		• participate in studies and investigations into remedies for greenhouse gas emissions (such as alternative fuel technology); and • further consider off-site activities to mitigate greenhouse gas emission. 2) Implement the Greenhouse Gas Management Plan.			
15	Atmospheric Emissions (Operations)	1) Develop an Atmospheric Emissions Management Plan to include: • stack emission monitoring, including stack parameters such as gas velocity, flow rate and temperature; and concentrations and mass emissions of oxygen, carbon dioxide, NOx, SOx, volatile organic compounds and minor emissions; • all practicable measures to minimise atmospheric emissions based on investigations of optimum solutions for fuel, energy, handling of vapours during vessel loading and other parameters of relevance. 2) Implement the Atmospheric Emissions Management Plan.	To verify emissions estimates. To minimise atmospheric emissions where practicable and comply with relevant guidelines.	During commissioning and operation During commissioning and operation.	
16	Vegetation and Flora (Operations)	1) Prepare a Vegetation and Flora Management Plan addressing details of ongoing management of terrestrial flora, vegetation, weeds and landscaped areas within the lease area. 2) Implement the Vegetation and Flora Management Plan.	To maintain species abundance and visual amenity and to minimise operation impacts on vegetation and flora.	Pre-commissioning Commissioning and on-going	CALM CALM
17	Terrestrial Fauna (Operations)	1) Prepare a Terrestrial Fauna Management Plan addressing details of ongoing management of terrestrial fauna, including fauna observation, handling and translocating procedures. 2) Implement the Terrestrial Fauna Management Plan.	To maintain species abundance and minimise operation impacts on terrestrial fauna. To undertake fauna management actions in agreement with CALM.	Pre-commissioning Commissioning and on-going	CALM CALM

No.	Topic	Action	Objective	Timing	Advice
18	Noise (Operations)	1) Prepare a Noise Management Plan, including: • an assessment of the noise contribution of the plant; and • compliance monitoring of the plant noise contribution. 2) Implement the Noise Management Plan.	To minimise the potential for exceedence of statutory guidelines. To confirm compliance with statutory guidelines.	Pre-commissioning Commissioning and on-going	Shire of Roebourne Shire of Roebourne
19	Liquid Waste (Operations)	1) Prepare a Liquid Waste Management Plan, including the following management measures: • uncontaminated stormwater will be discharged into existing drainage lines; • contaminated water will be routed to an evaporation pond; • treated sanitary wastewater will be disposed in accordance with DEP recommendations; • testing of stormwater for contaminants; and • monitoring of drainage lines for erosion or flooding. 2) Implement the Liquid Waste Management Plan.	To maintain water flow to rock pools and vegetation downstream from the site. To minimise potential contamination to the receiving environment.	Pre-commissioning Commissioning and on-going	CALM Water Corporation Shire of Roebourne CALM Water Corporation Shire of Roebourne
20	Solid Waste (Operations)	1) Prepare a Solid Waste Management Plan, including the following management measures: • recyclable wastes will be periodically removed by a contractor; • general refuse (domestic and industrial solid waste) and putrescible wastes will be disposed of at a Karratha Class II landfill; • spent catalysts and adsorption masses will be disposed of by specialist companies; and • no wastes will be burned on site. 2) Implement the Solid Waste Management Plan.	To minimise potential contamination to the receiving environment.	Pre-commissioning During operation	Shire of Roebourne Shire of Roebourne

No.	Topic	Action	Objective	Timing	Advice
21	Safety (Operations)	1) Prepare a Safety and Emergency Management & Response Plan, to include: • management of hazardous materials (including methanol spills); • pipelines management plans; • fire management; • alarms, communication signals, muster points and evacuation procedures; and • preparedness and procedures for cyclones. 2) Implement the Safety and Emergency Management & Response Plan.	To ensure that the risk to public and personnel safety and to the environment is as low as reasonably practicable and to minimise the potential creation of hazardous working environments.	Pre-commissioning Commissioning and on-going	MPR Shire of Roebourne Fire and Emergency Services Authority CALM Shire of Roebourne
22	Lighting (Operations)	1) Prepare a Lighting Management Plan, to include: • conformity with guidelines presented in Australian Standard AS 4282; and • operation of lighting to best practice, as consistent with site safety and security requirements. 2) Implement the Lighting Management Plan.	To minimise impact by light overspill to nearby sensitive receptors (e.g. public, turtles, etc.).	Commissioning and on-going	CALM
23	Aboriginal Heritage (Operations)	1) Prepare an Aboriginal Heritage Management Plan, to include: • the provision of cultural awareness training to the operational workforce. 2) Implement the Aboriginal Heritage Management Plan.	To increase personnel awareness of any Aboriginal sites of significance in the vicinity of the plant.	Commissioning and on-going	Department of Indigenous Affairs Appropriate Aboriginal Groups
24	Visual Amenity	Undertake the following management measures: • blend the plant into the surrounding landscape with appropriate paint colour schemes; • revegetate all temporary disturbances with local plant species; • house or store equipment and tools; and • maintain a high standard of housekeeping to ensure the visual amenity objective is met during operations.	To minimise potential impacts on visual amenity.	Prior to commissioning and ongoing	CALM

No.	Topic	Action	Objective	Timing	Advice
25	Regional environmental management	1) Contribute co-operatively with other industries located on the Burrup to address cumulative atmospheric modelling and monitoring. 2) Support initiatives to investigate and monitor potential cumulative impacts from industrial emissions.	To minimise the impacts of industrial development on the environmental attributes of the Burrup.	Prior to commissioning and ongoing	MPR

Abbreviations

CALM	Department of Conservation and Land Management
DEP	Department of Environmental Protection
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
MPR	Department of Mineral and Petroleum Resources
PER	Public Environmental Review