Statement No.

MINISTER FOR THE ENVIRONMENT AND HERITAGE

000613

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

METHANOL COMPLEX, BURRUP PENINSULA

Proposal: The construction and operation of a methanol complex (consisting of two nominal 6,000 tonne per day methanol plants, two air separation units, 220,000 tonnes of methanol storage and a desalination plant); transport of raw materials and products to and from the plant site; and ship loading operation at Dampier Port.

The first methanol plant will be a Lurgi Oel-Gas-Chemie plant utilising the "latest generation technology" as documented in schedule 1 of this statement. The complex will use North West Shelf Gas for energy and as feedstock for the process.

Proponent: Methanex Australia Pty Ltd

Proponent Address: Level 8, QV1 Building,
250 St George's Terrace, PERTH WA 6000

Assessment Number: 1405

Report of the Environmental Protection Authority: Bulletin 1077

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.

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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:

- 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;

- the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best available technology where practicable;
- significant improvements gained in environmental management, including the use of external peer reviews;
- stakeholder and community consultation about environmental performance and the outcomes of that consultation, including a report of any on-going concerns being expressed; and
- the proposed environmental targets over the next six years, including improvements in technology and management processes.

6 Decommissioning Plans

6-1 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) 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;

3) a conceptual plan for a care and maintenance phase; and

4) management of noxious materials to avoid the creation of contaminated areas.

6-2 At least six months prior to the anticipated date of decommissioning, 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) rehabilitation of all disturbed areas to a standard suitable for the agreed new land use(s); and

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

6-3 The proponent shall implement the Final Decommissioning Plan required by condition 6-2 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.

6-4 The proponent shall make the Final Decommissioning Plan required by condition 6-2 publicly available, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

7 Greenhouse Gas Emissions

7-1 Prior to commencement of construction of the 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) 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) 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.

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.

7-2 The proponent shall implement the Greenhouse Gas Emissions Management Plan required by condition 7-1 to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

7-3 The proponent shall make the Greenhouse Gas Emissions Management Plan required by condition 7-1 publicly available, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

8 Gaseous Emissions

8-1 Prior to submitting a Works Approval application for the first methanol plant, the proponent shall:

1) review and as necessary modify stack locations, heights, velocities and/or temperatures to preclude the effects of building wakes on gas plumes and to optimise plume rise; and
2) assess and where practicable implement effective measures in addition to those referred to in (1) above to further reduce the impact of gas plumes on elevated terrain,

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

8-2 At least two months prior to submitting a Works Approval application for the second (nominal 6,000 tonne per day) methanol plant, the proponent shall prepare a comprehensive report which includes:

1) the engineering design details for gaseous emissions, including stack heights, stack diameters, exit temperatures and exit velocities;
2) the estimated emissions of oxides of nitrogen and any other significant gaseous pollutants, under normal and worst-case conditions; and
3) air dispersion modelling of oxides of nitrogen emissions, and other pollutants as required, to predict ground level concentrations within the region,

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

8-3 At least two months prior to submitting a Works Approval application for the second (nominal 6,000 tonne per day) methanol plant, the proponent shall prepare a comprehensive report to demonstrate that:

- the proposed technology is consistent with the "best practicable technology" (see note 3 at foot of statement), particularly with respect to oxides of nitrogen emissions, and that the proposed gaseous emissions meet current industry standards for similar operations in developed countries; and
- all feasible options (process/technology improvement and oxides of nitrogen control measures) to further minimise oxides of nitrogen emissions have been considered,

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

8-4 The proponent shall incorporate the relevant design features arising from the reports and investigations required by conditions 8-1, 8-2 and 8-3, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

9 Brine and Wastewater Discharge

9-1 Prior to commissioning of the first methanol plant, and subject to availability of the Water Corporation's baseline seawater quality data, the proponent shall:

1) 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 methanol complex (including contaminant and nutrients in the seawater intake); and
2) 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 methanol complex,

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

9-2 Prior to submitting a Works Approval application for the first methanol plant, the proponent shall demonstrate that the proposed brine and wastewater discharge from the methanol complex meets "best practicable technology" and waste avoidance/minimisation principles for heavy metals, including copper, 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 first methanol plant, the proponent shall confirm that the proposed concentrations for all heavy metals, including copper, in the combined brine and wastewater discharge from the methanol complex (under normal and worst-case operations) meet (in order of preference):

- the ANZECC/ARMCANZ (2000) 99% species protection level just prior to entry to the multi-user brine and wastewater discharge system; or
- the ANZECC/ARMCANZ (2000) 99% species protection level at the edge of the approved mixing zone (currently 0.01 square kilometres), without having regard for dilution arising from other system users; or
- meet other limits, as determined by the Environmental Protection Authority on the basis of the regional background concentrations of contaminants in seawater and/or on the basis of a comprehensive report (by or audited by an independent expert approved by the Environmental Protection Authority) demonstrating that the proposed discharge represents "best practicable technology";

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

9-4 At least two months prior to submitting a Works Approval application for the second (nominal 6,000 tonne per day) methanol plant, the proponent shall conduct a review to:

1) characterise the physico-chemical composition and flowrate of all process wastewater streams within the methanol complex, 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 methanol complex (including contaminants and nutrients in the seawater intake); 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 methanol complex,

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

9-5 At least two months prior to submitting a Works Approval application for the second (nominal 6,000 tonne per day) methanol plant, the proponent shall demonstrate that the brine and wastewater discharge from the methanol complex meets "best practicable technology" and waste avoidance/minimisation principles for contaminants and nutrients, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

9-6 At least two months prior to submitting a Works Approval application for the second (nominal 6,000 tonne per day) methanol plant, the proponent shall confirm that the proposed contaminant concentrations in the combined brine and wastewater discharge from the methanol complex (under normal and worst-case operations) meet (in order of preference):

- the ANZECC/ARMCANZ (2000) 99% species protection level just prior to entry to the multi-user brine and wastewater discharge system; or

- the ANZECC/ARMCANZ (2000) 99% species protection level at the edge of the approved mixing zone (currently 0.01 square kilometres), without having regard for dilution arising from other system users; or
- meet other limits, as determined by the Environmental Protection Authority on the basis of the regional background concentrations of contaminants in seawater and/or on the basis of a comprehensive report (by or audited by an independent expert approved by the Environmental Protection Authority) demonstrating that the proposed discharge represents "best practicable technology";

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

9-7 Prior to submitting a Works Approval application for the second (nominal 6,000 tonne per day) methanol plant, the proponent shall confirm that the proposed load of nutrients will cause 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.

10 Noise

10-1 Prior to construction, the proponent shall prepare a Construction Noise Management Plan to minimise impacts on the amenity of Hearson Cove resulting from construction 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:

1) noise monitoring;

2) complaint management procedures; and

3) routine operating procedures to be adopted for particular activities to keep noise below the estimated levels.

10-2 The proponent shall implement the Construction Noise 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 Prior to awarding contracts for major noisy plant items (including items listed in the PER, SKM 2002, Table 8-30), the proponent shall submit a Noise Management Plan prepared or audited by a mutually acceptable independent acoustic engineer approved by the Environmental Protection Authority, to minimise impacts on the amenity of Hearson Cove 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:

1) identification of all practicable measures to further minimise noise at Hearson Cove;

2) an acoustic model of the plant;

3) noise monitoring;

4) complaint management procedures; and

5) routine operating procedures to be adopted for particular activities to keep noise below the estimated levels.

10-4 The proponent shall implement the Noise Management Plan required by condition 10-3 to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

10-5 The proponent shall make the Noise Management Plan required by condition 10-3 publicly available to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

11 Visual Impacts

11-1 Prior to construction, the proponent shall prepare a Preliminary Visual Amenity Management Plan to provide a framework to ensure that impacts on the visual amenity of Hearson Cove will be minimised by consideration of the aesthetics of plant design and layout, and including options such as:

- adoption of a suitable colour paint theme for the complex which blends in with the surrounds; and
- appropriate screening of the complex with vegetation, bunding or other means,

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

11-2 During final design and within 12 months following the commencement of construction, the proponent shall prepare the Final Visual Amenity Management Plan, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

11-3 The proponent shall implement the Final Visual Amenity Management Plan required by condition 11-2, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

11-4 The proponent shall make the Final Visual Amenity Management Plan required by condition 11-2 publicly available to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

12 Work Practices

12-1 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.

12-2 The proponent shall ensure that the prescription of work practices required by condition 12-1 is implemented, 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*.

3 With respect to "best practicable technology", "practicable" means "reasonably practicable having regard to, among other things, local conditions and circumstances (including costs) and to the current state of technical knowledge".

Dr Judy Edwards MLA
MINISTER FOR THE ENVIRONMENT AND HERITAGE

- 4 FEB 2003

Schedule 1

The Proposal (Assessment No. 1405)

The proposal is to construct and operate a methanol complex on the Burrup Peninsula, approximately 1300 kilometres north of Perth. The location of the complex is in the King Bay-Hearson Cove Industrial Area, as shown in Figure 1 (attached). The project lease has an area of approximately 100 hectares of which approximately 84 hectares will be cleared.

The complex will comprise two 6,000 (nominal) tonne per day methanol plants. The first methanol plant will be a Lurgi Oel-Gas-Chemie plant utilising the "latest generation technology". The complex also includes two air separation units, methanol storage of 220,000 tonnes, a desalination plant, transport of raw materials and products to and from the plant site, and a ship loading operation at Dampier Port. Construction of the second plant is not expected to be completed until 2010, depending on the methanol market.

The main characteristics of the proposal are summarised in Table 1 below.

Table 1 - Key Proposal Characteristics

Characteristic	Description
Project purpose	To produce methanol from natural gas using "latest generation technology".
Project life	Over 25 years.
Complex capacity	Maximum of 5 million tonnes per annum from two production plants.
Lease Area	Approx 100 hectares.
Site area (Area of disturbance)	Approx 56 hectares for two plants and 28 hectares for expansion. Total of approximately 84 hectares.
Complex facilities	
Process plant	2 x 6,000 tonne per day methanol production plants.
Air separation unit	2 x 3,000 tonne per day oxygen cryogenic air separation units.
Product storage	4 x 55,000 tonne storage tanks, 4 rundown tanks and 2 crude methanol tanks.
Power generation	30 megawatt/plant primary and 5 megawatt emergency generation.
Water systems	Desalination for up to 15 megalitres per day of fresh water for potable, steam systems and cooling tower make-up. Demineralisation systems to produce high pressure steam quality water.
Steam generation	Three level steam system (125, 50 and 5 bar gauge) generated from heat recovery and auxiliary boilers.
Utilities	Instrument and plant air systems. Wastewater treatment systems for domestic, process and contaminated stormwater. Nitrogen reticulation from the air separation unit.
Support facilities	Administration, maintenance, laboratory, emergency response & control room facilities.
Complex operation	24 hours per day for 365 days per year
Complex reliability	Each plant will require a shutdown for catalyst replacement and predictive and preventative maintenance once each 3-4 years. (The design case is for an average 350 operational days over a 3-year period.)
Seawater requirements	Up to 55 megalitres per day.

Characteristic	Description	
Natural gas input	About 400 terajoules per day for two plants	
Natural gas pipeline	1100 mm diameter nominal pipeline.	
Product export pipeline	750 mm diameter insulated pipeline (above ground) from the site to the Port (approximately 5 kilometres).	
Port facilities	Two berths, dedicated and/or shared, for the total facility production provided by the Dampier Port Authority.	
Complex efficiency	33 – 35 gigajoules per tonne of methanol (high heating value)	
Construction period	27 months for the first plant.	
Workforce	1000 at peak construction, up to 150 for normal operation.	
Catalysts Desulphurisation Reforming Synthesis	 Cobalt Molybdenum / Nickel Molybdenum hydrogenation and Zinc Oxide desulphurisation catalysts. Nickel steam reforming catalyst. Copper methanol synthesis catalyst.	
Noise	65 dB(A) at the lease boundary.	
Solid wastes Collected by contractor for recycling/re-use and disposal	Waste generated from operation of two plants. Batteries, paper, cardboard, sludge and solvents – about 80 tonnes per year. Scrap metal – about 104 tonnes every 3 to 4 years (turnaround). Waste oil – about 44 kilolitres every 3 to 4 years (turnaround).	
Returned to vendor Landfill Recycled Composted	Catalyst waste – about 640 tonnes every 3 to 4 years (turnaround). Fluorescent tubes, lamps – about 2000 in number every year. General refuse – about 150 tonnes per year. Ceramic fibres – about 80 tonnes every 3 to 4 years (turnaround). Glass, plastics and chemicals – about 2.3 tonnes per year. Organic waste – about 0.4 tonnes per year.	
Wastewater Brine, Treated Wastewater & Cooling Tower Blowdown Brine	Up to 45 megalitres per day. Up to 44,000 kilolitres per day.	
	Discharge on entry to return system (milligrams per litre)	Calculated annual load to return line (kilograms per year)
Total Dissolved Solids	55,000	-
Anti-scalants	3.82	50,380
Anti-foaming agent	0.32	4,220
Cooling tower blowdown	Up to 900 kilolitres per day.	
	Maximum discharge on entry to proponent's brine return line (milligrams per litre)	Calculated annual load to return line (kilograms per year)
Copper	Negligible.	
Zinc	1	160
Phosphate	9	1,420
Total Phosphorus	3	470
Neutralising Amines	0.3	50
Polymeric Dispersants	16	2,510
Free Biocides	Zero.	Zero.
Treated Wastewater	Up to 700 kilolitres per day.	
	Maximum discharge on entry to proponent's brine return line (milligrams per litre)	Calculated annual additional load to return line (kilograms per year)
Free chlorine	0	0
Total hydrocarbons	10	2,080
Methanol	15	3,120
Copper	0.5	50
Nickel	1	100
Zinc	1	100

Characteristic	Description	
Chemical Oxygen Demand	100	20,800
Ammonium	10	1,460
Total Nitrogen	10	1,460

Note: Annual load based on average conditions and does not include background concentrations in seawater. Levels of Chemical Oxygen Demand discharged based on average conditions. No data for maximum conditions.

Domestic	Up to 10 kilolitres per day. Irrigated on landscaped areas.
Biological Oxygen Demand	20 milligrams per litre
Total suspended solids	30 milligrams per litre
Coliforms	<1000 colony-forming units per 100 millilitres (thermotolerant coliforms)
Stormwater	Dual stormwater system: ▪ Stormwater directed to a stormwater pond for analysis, treatment or discharged to clean stormwater system depending on results. ▪ Stormwater pond sized to contain first 100 mm of any storm event with minimum capacity of 20,000 cubic metres. ▪ Run-off subsequent to the first 100 mm will be diverted into the clean stormwater system. ▪ Clean stormwater directed through interceptors into natural watercourses. Discharge to natural watercourses via a weir or other design in such a way as to prevent erosion. ▪ Stormwater in the bunded areas will be analysed prior to discharge. If contaminated, it will be directed to the stormwater pond and if clean, to the clean stormwater system.
Total dissolved solids	1000 milligrams per litre
pH	6-9
Total suspended solids	10 milligrams per litre

Note: All analysis to be based on 24 hour composite samples unless otherwise agreed.

Approximate gaseous emissions	Estimated Maximum Rate (kilograms per hour)	Calculated per tonne methanol (kilograms per tonne of methanol)	Calculated Annual Load (tonnes per year)
NO_x	483	0.35	1,745
SOx	3.2	Nil	1.7
CO	1,052	0.1	553
VOC	3.9	0.22	1,121
PM_{10}	2.5	Nil	Nil
CO_2	254,310	410	2.0 million
Greenhouse Gas Intensity	0.35 – 0.45 tonne CO_2 per tonne of methanol, on average 0.41 with 2.1% CO_2 gas.		

Note. Atmospheric emissions based on best conservative estimates from preliminary FEED for two nominal 6,000 tonne per day production plants. Greenhouse gas emissions are expected and approximate emissions from maximum production of 5 million tonnes per annum determined over the life cycle of the methanol conversion catalyst. Annual loads calculated assuming average 350 normal operating days per year.

Figure

Figure 1 - Project location (attached).

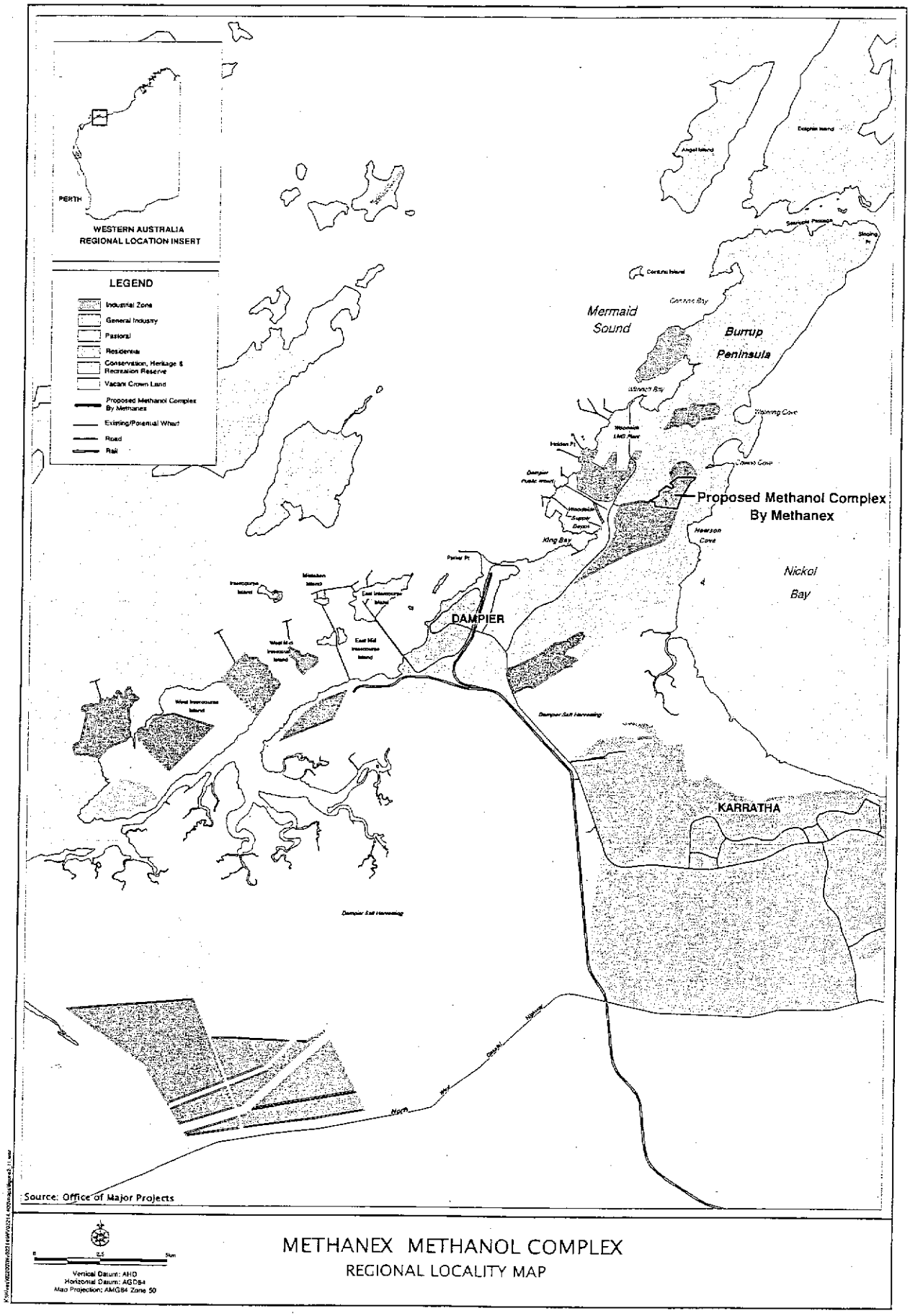

Figure 1 - Project location

Schedule 2

Proponent's Environmental Management Commitments

29 January 2003

METHANOL COMPLEX, BURRUP PENINSULA
(Assessment No. 1405)

METHANEX AUSTRALIA PTY LTD

Proponent's Consolidated Environmental Management Commitments, 29 January 2003 (Assessment No. 1405)

No.	Topic	Description	Objective	Timing	Advice
1	Detailed Design Environmental Management	Report on the outcomes of the plant optimisation/detailed design process which includes: • Terrestrial flora and fauna; • Cultural heritage; • Noise emissions; • Atmospheric emissions; • Hazardous materials; • Risk; and • Visual amenity of Hearson and Cowrie Coves	To minimise further the impact on the environment through the plant optimisation/detailed design process and confirm compliance with regulatory guidelines.	Pre-construction	
1.1	Terrestrial Flora and Fauna	Review the final complex layout to: • minimise the envelope of disturbance particularly to vegetation of high or moderate significance; • minimise disturbance to vegetation units Er and BaEveTe as far as practicable; and • protect rockpile habitats where practicable.	To minimise impacts on vegetation communities in a regional context and impacts on Priority flora	Pre-construction	CALM
1.2	Cultural Heritage	Undertake cultural heritage surveys and report on the results and recommendations of archaeological and ethnographical surveys of the project site.	To minimise impacts on areas considered being of Aboriginal heritage and cultural significance.	Pre-construction	DIA
1.3	Noise	1. Re-evaluate noise emissions from the complex to: • confirm compliance with boundary noise criteria and to determine the contribution of noise at Hearson Cove; and • ensure that noise levels will meet 65 dB(A) LA10 at the boundary and that where feasible and practicable implement noise attenuation measures to improve on this level to minimise noise at Hearson Cove. 2. Utilise the expertise of an acoustic engineer to ensure that the best feasible and practicable noise attenuation measures are included during the final design of the methanol complex; 3. Upgrade the noise data sheets for plant equipment to include sound power and sound pressure levels in accordance with the recommendations made in the report on the Review of Lurgi's Noise Assessment of the Methanex Plant by SVT Engineering Consultants of October 2002.	To confirm compliance with boundary noise criteria and to reduce, where practicable, the contribution to noise at Hearson Cove.	Pre-commissioning	
1.4	Atmospheric Emissions	Investigate the optimum solution for the fuel and energy balance of the plant with a view to minimise the overall emissions from the complex where practicable.	To minimise atmospheric emissions where practicable and comply with relevant guidelines.	Pre-construction	

No.	Topic	Description	Objective	Timing	Advice
1.5	Hazardous Materials	Design all chemical and product storage bunds with sufficient capacity to contain the volume of the content of the largest tank and to contain 24 hours of rainwater for a 1-in-100 year 24hr event (ie additional 144mm).	To comply with relevant guidelines and conditions and to provide sufficient additional capacity to minimise the potential for overflows.	Pre-construction	MPR
1.6	Risk	Undertake a Quantitative Risk Assessment of the final detailed design of the complex, product pipeline and product loading activities.	To comply with relevant guidelines and minimise potential impacts on public safety.	Pre-commissioning	MPR
1.7	Visual Amenity of Hearson and Cowrie Coves	Investigate and implement feasible and practicable on site options to minimise the visual impact of the complex on amenity including: • Selection of colour of paint work in consideration of existing landscape colours, and heat-reflective capabilities, etc; • Appropriate screening (Landscaping plan); and • Improvement on Australian Standard 4282 "Control of Obtrusive Effects of Outdoor Light," where practicable.	To ensure that impacts on amenity are minimised.	Pre-commissioning	CALM, DPI, SoR
2	Construction Environmental Management	Develop a Construction and Pre-commissioning Environmental Management Programme which includes the following plans and actions: 1. Flora and Vegetation Management Plan; 2. Landscaping Plan; 3. Fauna Management Plan; 4. Erosion and Sediment Control Plan; 5. Dust Management Plan; 6. Noise Management Plan; 7. Solid Waste Management Plan; 8. Liquid Waste Management Plan; 9. Hazardous Materials Management Plan; 10. Pre-commissioning Management Plan; 11. Construction Safety Management Plan; 12. Cultural Heritage Plan; 13. Traffic Management Plan; and 14. Cyclone Contingency Plan. 15. Complaint Management Plan Implement the Construction and Pre-commissioning Environmental Management Programme.	To manage all relevant environmental factors associated with the construction phase of the project.	Pre-construction Construction	CALM CALM, SoR CALM, WAM CSLC MPR AQIS MPR MPR, FESA, CALM DIA MRWA, SoR, FESA MPR, FESA

No.	Topic	Description	Objective	Timing	Advice
2.1	Terrestrial flora	Prepare a Flora and Vegetation Management Plan which includes: • results and recommendations of a wet season vegetation survey (provided sufficient rainfall prior to construction); • site clearance procedures; • consultation with CALM for managing impacts on Priority flora; and • weed management. Implement the Flora and Vegetation Management Plan	To document additional flora species, minimise impacts on vegetation communities in a regional context and manage construction impacts on vegetation, flora and particularly Priority Flora.	Pre-construction Construction	CALM
2.2	Terrestrial flora	Prepare a Landscaping Plan which includes: • consultation with CALM for re-establishing local native flora, including Priority Flora; • procedures to backfill and level all temporary excavations and pits; • a strategy to source fill from the project site where possible; and • procedures to obtain approval from the Shire of Roebourne if additional fill is required. Implement the Landscaping Plan	To maintain species abundance and minimise impacts on visual amenity.	Pre-construction Construction	CALM SoR
2.3	Terrestrial fauna	Prepare a Fauna Management Plan which includes: • results of a pre-construction fauna survey that catalogues the presence and quantity of the pebble mound mouse; • procedures for fauna handling and evacuating procedures; • procedures to control introduced species; and • procedures for ensuring disturbance is kept within designated areas of the project site. Implement the Fauna Management Plan	To monitor the presence of significant fauna.	Pre-construction Construction	WAM CALM
2.4	Erosion	Prepare an Erosion and Sediment Control Plan which includes procedures for erosion control, monitoring and reporting of the performance of drainage systems. Implement the Erosion and Sediment Control Plan	To minimise erosion within the site during construction and prevent off-site deposition.	Pre-construction Construction	CSLC, SoR
2.5	Dust	Prepare a Dust Management Plan which includes procedures for controlling dust emissions and monitoring of the performance of implemented dust control strategies. Implement the Dust Management Plan	To ensure that dust generated during construction does not cause any environmental or human health problem or adversely impact on amenity.	Pre-construction Construction	SoR

No.	Topic	Description	Objective	Timing	Advice
2.6	Noise	Prepare a Noise Management Plan which includes: • procedures to address the issue of ground vibration from blasting activities; and • procedures to address any noise complaints received during construction. Implement the Noise Management Plan	To ensure that construction noise complies with Regulations and to protect the amenity at nearby Hearson Cove.	Pre-construction Construction	MPR, SoR
2.7	Solid waste	Prepare a Solid Waste Management Plan based on a waste management hierarchy and includes a solid waste inventory and procedures for sorting and disposing of solid wastes during construction. Implement the Solid Waste Management Plan	To minimise waste and the potential to contaminate ground and surface water or risk to public health.	Pre-construction Construction	AQIS SoR
2.8	Liquid waste	Prepare a Liquid Waste Management Plan based on a waste management hierarchy and includes a liquid waste inventory and procedures for treating and disposing of liquid wastes during construction. Implement the Liquid Waste Management Plan	To minimise waste and the potential to contaminate ground and surface water of risk to public health.	Pre-construction Construction	SoR
2.9	Hazardous materials	Prepare a Hazardous Materials Management Plan for construction that includes procedures for: • establishment of purchasing and inventory controls; • storage, handling and spills; and • monitoring and auditing. Implement the Hazardous Materials Management Plan	To minimise waste and the potential to contaminate ground and surface water of risk to public health.	Pre-construction Construction	MPR
2.10	Pre-commissioning	Prepare a Pre-commissioning Management Plan which includes procedures for managing the activities (eg waste generation) associated with the testing of the complex following construction. Implement the Pre-commissioning Management Plan	To manage all relevant environmental factors associated with the pre-commissioning phase of the project.	Conceptual pre-construction Construction	

No.	Topic	Description	Objective	Timing	Advice
2.11	Safety	Prepare a Construction Safety Management Plan which addresses all work, safety and emergency response procedures required during construction including: • Provision of fire fighting equipment; • Reporting of fires; • Alarms and communication signals; • Muster points; • Evacuation procedures; and • Cyclone Contingency Plan detailing preparedness and procedures for the three different cyclone warning stages (blue, yellow and red). Implement the Construction Safety Management Plan	To minimise the risk to public safety and the potential creation of hazardous working environments.	Pre-construction Construction	MPR FESA CALM SoR
2.12	Cultural Heritage	Prepare a Cultural Heritage Plan which includes: • a cultural heritage protocol which addresses heritage surveys and ongoing consultations; • recommendations of archaeological and ethnographical surveys of the project site relevant to construction; • procedures to minimise disturbance to and manage heritage sites; • An Aboriginal Awareness Program specific to the construction phase developed in consultation with Aboriginal groups; and • procedures to document any complaints on a register and investigate substantiated complaints. Implement the Cultural Heritage Plan	To minimise impacts on areas considered being of Aboriginal heritage and cultural significance.	Pre-construction Construction	DIA
2.13	Traffic	Prepare a Traffic Management Plan which will focus on: • traffic flow patterns and scheduling of traffic movements on road thoroughfare; • public safety, awareness and signage during construction; • the capacity of existing road conditions to support proposed heavy loads and road usage; • monitoring the transportation of oversized loads; • design and construction of roading within the plant site; and • restricting vehicle access to designated routes such that unnecessary disturbance to the surrounding environment is prevented. Implement the Traffic Management Plan	To minimise potential traffic impacts and ensure safety of public during construction.	Pre-construction Construction	MRWA SoR FESA

No.	Topic	Description	Objective	Timing	Advice
2.14	Amenity and Community Consultation	Prepare a Complaint Management Plan which includes: • A protocol to investigate and address any substantiated complaints received during construction, including complaints received from recreational users of Hearson and Cowrie Coves; and • A register of complaints. Implement the Complaint Management Plan	To minimise impacts on amenity, the community and to develop an ongoing working relationship with community members.	Pre-construction Construction	SoR
3	Operation Environmental Management	Develop an Operation Environmental Management Programme (OEMP) which includes the following plans: 1. Flora, Vegetation and Landscaping Management Plan; 2. Fauna Management Plan; 3. Erosion and Sediment Control Plan; 4. Methanol Spill Contingency Plan; 5. Water Quality Management Plan; 6. Dust Management Plan; 7. Noise Management Plan; 8. Solid Waste Management Plan 9. Liquid Waste Management Plan; 10. Hazardous Materials Management Plan; 11. Aboriginal Awareness Programme; 12. Community Consultation Plan; and 13. Complaint Management Plan. Implement the Operational Environmental Management Programme.	To manage all environmental factors associated with the operational phase of the project.	Pre-commissioning Operations	 CALM CALM CSLC DPA DPA, AQIS MPR DIA
3.1	Terrestrial flora	Prepare a Flora, Vegetation and Landscaping Management Plan which includes: • details of continuous weed, vegetation and Priority flora management; and • ongoing on-site management procedures for landscaped areas. Implement the Flora, Vegetation and Landscaping Management Plan.	To maintain species abundance and minimise operation impacts on vegetation, flora and visual amenity.	Pre-commissioning Operations	CALM
3.2	Terrestrial fauna	Prepare a Fauna Management Plan which includes operation procedures for: • maintaining hygiene and house keeping on the plant to prevent fauna from being encouraged to inhabit and attracted to the plant site; • fauna handling, recording and translocation procedures; and • procedures to control introduced species. Implement the Fauna Management Plan.	To monitor the presence and minimise disturbance of significant fauna.	Pre-commissioning Operations	CALM

No.	Topic	Description	Objective	Timing	Advice
3.3	Erosion	Prepare an Erosion and Sediment Control Plan which includes monitoring and reporting of the performance of sediment control strategies. Implement the Erosion and Sediment Control Plan.	To prevent off-site deposition of sediment during operation.	Pre-commissioning Operations	CSLC, SoR
3.4	Spillage	Prepare a Methanol Spill Contingency Plan which includes procedures to prevent methanol spills, spill response procedures, monitoring and reporting. Implement the Methanol Spill Contingency Plan.	To minimise the potential for spillage of methanol on water quality, the marine environment and public health.	Pre-commissioning Operations	DPA
3.5	Water quality	Prepare a Water Quality Management Plan which includes: • Procedures for testing, monitoring and reporting of potentially contaminated stormwater; • Details of monitoring points and parameters to be tested; • Adoption of AQIS guidelines, requirements of the Dampier Port Authority and appropriate ballast water management procedures; and • Procedure to inform vessel masters that no vessel hull scraping or antifoulant painting may take place in the Port of Dampier. Implement the Water Quality Management Plan.	To maintain the quality of surface water, minimise the impact of shipping on the marine environment and prevent the contamination of the marine environment from antifouling.	Pre-commissioning Operations	DPA AQIS
3.6	Dust	Prepare a Dust Management Plan which includes procedures to control dust emissions that may occur during operation. Implement the Dust Management Plan.	To minimise potential impacts on visual amenity and public health.	Pre-commissioning Operations	SoR
3.7	Noise	Prepare a Noise Management Plan which includes: • Details of noise attenuation adopted; • Procedures to undertake compliance noise monitoring by suitably qualified personnel to distinguish between noise levels from local environmental sources and other nearby operating industries, if they exist; • Details of monitoring locations; and • Reporting requirements. Implement the Noise Management Plan.	To ensure that noise emissions comply with Regulations and meet EPA objective to protect amenity at Hearson Cove.	Pre-commissioning Operations	SoR
3.8	Solid waste	Prepare a Solid Waste Management Plan based on a waste management hierarchy and which includes a solid waste inventory and procedures for sorting and disposing of solid wastes. Implement the Solid Waste Management Plan.	To minimise waste and the potential to contaminate ground and surface water or risk to public health.	Pre-commissioning Operations	SoR

No.	Topic	Description	Objective	Timing	Advice
3.9	Liquid waste	Prepare a Liquid Waste Management Plan which includes: • Details and performance of methods used to treat process wastewater prior to discharge to the brine return line; • Details of monitoring, testing and reporting of liquid waste streams in the complex; • Details of monitoring points and parameters to be tested; • Compliance with the requirements of the Water Corporation and the Department of Environmental Protection; • Criteria which trigger management actions: and • The requirement to undertake 'Whole Effluent Toxicity Testing' of the brine and wastewater stream. Implement the Liquid Waste Management Plan.	To determine and minimise impacts on the marine environment and maintain marine water quality.	Pre-commissioning Operations	WC
3.10	Hazardous materials	Prepare a Hazardous Materials Management Plan which includes: • Procedures for maintaining an inventory of hazardous materials; • Storage and handling requirements; and • Spill response procedures. Implement the Hazardous Materials Management Plan.	To minimise the potential for groundwater and surface water contamination or risk to public health.	Pre-commissioning Operations	MPR
3.11	Aboriginal Heritage	Develop an Aboriginal Awareness Program in consultation with Aboriginal groups for the operations workforce. Implement the Aboriginal Awareness Program.	To minimise impacts on areas considered to be of Aboriginal heritage and cultural significance.	Pre-commissioning Operations	DIA
3.12	Community Consultation	Prepare a Community Consultation Plan which outlines a protocol to establish a Community Advisory Panel to facilitate ongoing consultation with the community. Implement the Community Consultation Plan.	To establish a working relationship with community members such that environmental and social impacts from the complex are minimised.	Pre- commissioning Operations	SoR
3.13	Amenity and Community Consultation	Prepare a Complaint Management Plan which includes: • A protocol to address and investigate any substantiated complaints received during operation, including complaints received from recreational users of Hearson and Cowrie Coves; and • A register of complaints. Implement the Complaint Management Plan.	To minimise impacts on amenity, the community and to develop an ongoing working relationship with community members.	Pre-commissioning Operations	SoR

No.	Topic	Description	Objective	Timing	Advice
4	Terrestrial fauna	Contribute to taxonomic research programs investigating *Rhagada* sp., *Planigale* sp. and *Delma pax* and report on the tasks and findings of the three programs.	To contribute to the knowledge base of Pilbara fauna.	Pre-construction	WAM
5	Marine Environment	Offer to become an active participant in the committee of Terminal Operators at the Dampier Port.	To assist in the implementation of the Dampier Port Authority's Marine Pollution Contingency Plan.	Pre- commissioning	DPA
6	Marine Environment	1. Participate in the development and operation of a Burrup Wastewater Management Framework for the Water Corporation's Burrup sea water supply and brine return facilities; 2. If it is demonstrated to the proponent that an adverse environmental impact is occurring as a direct result of the proponent's wastewater discharge, investigate measures to minimise the impact and implement where fair, reasonable and practicable.	To minimise impacts on the marine environment and maintain marine water quality.	Operation	WC
7	Greenhouse gas emissions	Develop a framework agreement as part of joining the Greenhouse Challenge and implement the agreement.	To participate in the national programme of managing greenhouse gas emissions with the aim of minimising emissions where practicable.	Pre- commissioning	
8	Greenhouse gas emissions	Manage greenhouse gas emissions by: • Continuing to research and develop the methanol process in order to improve efficiency and reduce gas usage and implement plant improvements where practicable; • Becoming a member of the Australian Industry Greenhouse Network; • Joining the Burrup Industrial Council and participating and assisting in agreed studies and investigation into the effects and remedies, such as alternative fuel technology, other technology advances and off-set measures, for greenhouse gas emissions where practicable; and • Adopting and implementing practicable and feasible actions where appropriate to the global methanol industry.	To participate in the national programme of managing greenhouse gas emissions with the aim of minimising emissions where practicable.	Operation	AGO

No.	Topic	Description	Objective	Timing	Advice
9	Safety	Prepare a Safety Management System, a Safety Management Plan and a Safety Emergency Response Plan. The Safety Emergency Response Plan will be undertaken in consultation with CALM, MPR, FESA and other industry and will include: • Wild Fire Management Plan to cover firebreaks, fire suppression and resourcing; • Reporting of fires; • Procedures for managing external fires; • Alarms and communication signals; • Muster points; • Evacuation procedures; and • Cyclone Contingency Plan detailing preparedness and procedures for the three different cyclone warning stages (blue, yellow and red). Implement the Operation Safety Report.	To minimise the risk to public safety and the potential creation of hazardous working environments.	Pre- commissioning Pre-construction Commissioning	MPR, FESA, CALM, SoR, other industry
10	Regional environmental impacts	Seek to establish and participate with the Burrup Industrial Council in managing industry requirements for the Burrup Peninsula. Contribute to mutually agreed studies or investigations of cumulative impacts and implement practicable and feasible actions where appropriate to the methanol complex operation. As a member of the Council, participation will include: • Assisting where practicable in the development of an integrated emergency response system for the Burrup and development of a company protocol for participation; • Encouraging the formulation and implementation of a cumulative impact monitoring programme to assess the on-going impact of overall industry development and operation on the environment; • Encouraging a coordinated approach to the management of impacts on social amenity of the current and future residents of the region; • Encouraging the Council to act as a forum for a coordinated approach to greenhouse gas emissions abatement investigations.	To minimise the impact of industry on the social environment, recreational areas, flora and fauna, Aboriginal sites, aquatic environment and assist in mutual aid.	Operation	MPR, SoR
11	Regional Planning Requirements	Liaise with OMP to coordinate the planning of pipelines and other requirements within infrastructure corridors, and assist OMP to conduct a cumulative risk assessment to manage the risk/hazard to own pipeline	To ensure planning is undertaken in a coordinated manner such that the requirements for all proponents are met.	Pre-construction	OMP, SoR

No.	Topic	Description	Objective	Timing	Advice
12	Regional Planning Requirements	Consult stakeholders on details of the product pipeline design.	To provide the opportunity for stakeholders to comment on the proposed pipeline design.	Prior to completion of final design.	MPR OMP CALM SoR

Abbreviations:

AGO – Australian Greenhouse Office
AQIS – Australian Quarantine and Inspection Service
CALM – Department of Conservation and Land Management
CLSC – Commissioner for Soil and Land Conservation
DEP – Department of Environmental Protection
DIA – Department of Indigenous Affairs
DPI – Department for Planning and Infrastructure
MPR – Department of Mineral and Petroleum Resources
DPA – Dampier Port Authority
EPA – Environmental Protection Authority
EPC – Engineering, Procurement and Construction
FESA – Fire and Emergency Services Authority
MRWA – Main Roads Western Australia
OMP – Office of Major Projects
SoR – Shire of Roebourne
WAM – WA Museum
WC – Water Corporation