MINISTER FOR THE ENVIRONMENT AND HERITAGE

Statement No.

000614

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

AMMONIA-UREA PLANT, BURRUP PENINSULA

Proposal: The construction and operation of an ammonia plant of 2300 tonnes per day nominal capacity and a urea plant of 3500 tonnes per day nominal capacity on the Burrup Peninsula, utilising Krupp-Udhe technology, as documented in schedule 1 of this statement.

The plants will utilise North-West Shelf Gas both for energy and as feedstock for the process. The proposal includes an on-site desalination plant.

Proponent: Dampier Nitrogen Pty Ltd

Proponent Address: Level 13, St George's Square,
225 St George's Terrace, PERTH WA 6000

Assessment Number: 1178

Report of the Environmental Protection Authority: Bulletin 1065

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:

1. the environmental factors of the proposal have not changed significantly;
2. new, significant, environmental issues have not arisen; and
3. 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:

1. the implementation of the proposal as defined in schedule 1 of this statement;
2. evidence of compliance with the conditions and commitments; and
3. 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 five 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 five 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 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. 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 are complete.

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.

The following are to be included as part of annual reporting on environmental performance:

- an estimate of "greenhouse gas" emissions (broken down by species and in carbon dioxide equivalents) from the production of ammonia and urea;
- an estimate of the downstream (ie post-production) "greenhouse gas" emissions (broken down by species and in carbon dioxide equivalents) from the ammonia and urea, noting that this is a source of emissions which the proponent does not and cannot control; and
- an account of the methodology used in making the estimates.

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 ammonia-urea 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 that oxides of nitrogen emissions from gas turbines will meet the Environmental Protection Authority's guideline value of 0.07 grams per cubic metre as stated in its Guidance Statement No. 15 "Emissions of Oxides of Nitrogen from Gas Turbines," May 2000; or

if a NO_X concentration higher than the Environmental Protection Authority's guideline value for gas turbines (0.07grams per cubic metre) is proposed, provide a comprehensive report (by or audited by a mutually agreed independent expert) to demonstrate that:

- all feasible options (process/technology improvement and NO_X control measures) to minimise NO_X emissions have been considered (including an evaluation of the expected reduction in emissions of NO_X and efficiencies for each option); and
- the proposed options to minimise NO_X are consistent with the best practicable technology and current industry standards for similar operations with other combined cycle gas turbine systems in developed countries; and

4 remodel the oxides of nitrogen emissions to determine building wake effects,

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 minimised or preferably avoided.

8-2 Prior to submitting a Works Approval application for the ammonia-urea plant, the proponent shall provide a report to the Environmental Protection Authority:

1) demonstrating that ammonia and urea emissions meet current industry standards for similar operations, or justifying why these standards cannot be met in these circumstances;
2) reviewing ammonia and urea emission reduction technologies and pollution control devices, and the results achievable on application of these; and
3) outlining the reasons for the final selection of an emissions control system and demonstrating that this is the best practicable system,

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

8-3 At least three months prior to submitting a Works Approval application for the ammonia-urea plant, the proponent shall design, and subsequently implement, a monitoring program to identify the impacts of ammonia and urea emissions on the surrounding areas, to include:

1) Identification of preliminary warning indicators and "trigger levels" to indicate impacts of ammonia and urea on natural systems, including soil condition, rockpools, vegetation and mangal communities;
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.

8-4 In the event that monitoring of urea emissions undertaken as part of the monitoring program prepared in accordance with condition 8-3 indicates that fugitive urea dust is being emitted from the urea conveyor so as to cause an adverse environmental impact or is found to be unreasonably interfering with the health, welfare, convenience, comfort or amenity of any person, the proponent shall, investigate options, including enclosure of the conveyor, and subsequently implement additional urea dust control measures as soon as practicable to prevent further fugitive urea dust emission, 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 submitting a Works Approval application for the ammonia-urea 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.

9-2 Prior to submitting a Works Approval application for the ammonia-urea 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.

9-3 Following completion of design, and at least three months prior to submitting a Works Approval application for the ammonia-urea plant, the proponent shall present to the Environmental Protection Authority its preferred option for Boiler Feedwater Conditioning, together with a detailed rationale for its selection and use, and shall demonstrate waste minimisation and best practicable technology, to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

9-4 Prior to submitting a Works Approval application for the ammonia-urea 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.

9-5 Prior to submitting a Works Approval application for the ammonia-urea 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.

9-6 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.

9-7 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.

10 Noise

10-1 Prior to submitting a Works Approval application for the ammonia-urea plant, the proponent shall prepare a Noise Management Plan to minimise the impacts on the amenity of Hearson Cove from 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:

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

10-2 The proponent shall implement the 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 The proponent shall make the Noise Management Plan required by condition 10-1 publicly availability to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.

10-4 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 10-1; and
3 demonstrate that the design and Plan incorporate best practicable measures to minimise noise at Hearson Cove,

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

11 Urea Storage Shed Site

11-1 If the Option 1 site (See Table 1) is reasonably available to the proponent for the construction of the Urea Storage Shed, the proponent shall utilize the Option 1 site in preference to the Option 2 site.

11-2 In the event that the Option 1 site is not reasonably available to the proponent, prior to utilizing the Option 2 site, the proponent shall demonstrate in report form that:

1 all other feasible site options have been investigated and there is no other reasonable and practicable site available;
2 every practicable effort has been made to minimise the damage to significant vegetation on the site by the design and positioning of the Storage Shed; and
3 measures to conserve other areas of vegetation or replace significant vegetation that will be removed have been considered and adopted as far as practicable,

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 Following final technology decisions, the proponent will be in a position to meet the requirements of conditions 8 (gaseous emissions) and 9 (brine and wastewater discharge).

Dr Judy Edwards MLA
MINISTER FOR THE ENVIRONMENT AND HERITAGE

- 6 DEC 2002

Schedule 1

The Proposal (Assessment No. 1178)

The proposal is to construct and operate an ammonia-urea plant 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 67 hectares of which approximately 12 hectares will be cleared for the plant, as shown in Figure 2 (attached).
The ammonia-urea plant will comprise of an ammonia plant producing 2300 (nominal) tonnes per day of ammonia and a urea plant producing 3500 (nominal) tonnes per day of urea. Krupp-Udhe technology will be utilized.

The plant also includes:

- a seawater desalination plant;
- seawater treatment and storage;
- internal power generation and distribution;
- product storage facilities for ammonia (on-site) and urea (on-site and near wharf);
- pipelines for ammonia export from the site to the wharf;
- urea formaldehyde storage on site;
- transfer conveyor systems;
- ship load-out facilities for bulk granular urea; and
- ship-loading facilities for load-out of anhydrous (liquid) ammonia.

All pipelines and conveyors will be situated in multi-user corridors which have not been assessed as part of this proposal.

Seawater supply and return will be undertaken by the Water Corporation and assessment of this has not been undertaken as part of this proposal.

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

Table 1 - Key Proposal Characteristics (1178)

Characteristic	Description
Plants on site:	**Outputs:**
Ammonia Plant	2,300 tpd nominal capacity, using Krupp-Uhde technology.
Urea Plant	3,500 tpd nominal capacity, granulated product.
Desalination Plant	2.4 ML/d from desalination of seawater.
Plant Area	Approx 12 hectares.
Total Area disturbed	12 to 15 hectares.
Storage:	
Ammonia	40,000 tonnes capacity on plant site, in double-walled double-integrity refrigerated tank.
Urea (port site)	160,000 tonnes capacity, fully enclosed shed. Two options for the location of the shed given, of which Option 1 is preferred over Option 2.
Urea (plant site)	4,000 tonnes capacity fully enclosed surge bin.
Inputs:	
Natural Gas	Max. 93 TJ/day from LNG Plant.
Urea formaldehyde	11 000tpa approximately. To be trucked in.
Sea Water for Cooling:	
- Process Plant	2,300-3,000 kL/h from the Water Corporation (to be drawn from Mermaid Sound) [3]
- Desalination plant	500 kL/h from the Water Corporation
Cooling Tower	to incorporate measures to reduce mist to 0.01% of flow
Power Supply	Internal generation, with some export. Supplied by two co-generation 15MW gas turbines, steam boiler and emergency generators (to be specified).
Energy efficiency	Approximately 30GJ/t ammonia. 5.5 to 6.0GJ/t urea.
Materials Transport:	
Natural Gas Pipeline	3 km length, 200mm diameter, 4.2 to 4.8 MPag pressure, buried.
Ammonia Pipeline	2.5 km length, 400 mm diameter, above ground, insulated for refrigerated ammonia transfer. To be emptied of liquid when not in use for ammonia transfer and fitted with automatic isolation valves at each end.
Ammonia Vapour Return Line	2.5 km length, 200 mm diameter, above ground, fitted with automatic isolation valves at each end.
Urea Conveyor	3.0 km length, mainly above ground. To be covered and fully enclosed over roadways and water. To be fitted with baghouses at appropriate points.
Urea Shiploading System	Travelling, conveyor-fed, cantilever arm loader with direct discharge to ship hold via chute.

Shipping	Export of ammonia approximately 7 times per year; urea 30 to 35 times per year.
Gaseous Emissions:	
Oxides of nitrogen (NOx) (as NO_2)	717 tpa approximately. To be achieved with low NOx burners on reformer, gas turbines and steam boiler.
Carbon dioxide (CO_2) vented to atmosphere[1]	824,600 tpa approximately. Total CO_2 generated approximately 1,710,000 tpa of which approximately 886,000 tpa used in urea manufacture.
Sulphur dioxide (SO_2)	8.4 tpa approximately. All process gas to be desulphurised.
Hydrogen (H_2)	750 tpa approximately, to be flared
Methane (CH_4) [2]	Traces, to be flared
Ammonia (NH_3)	800 tpa maximum, to be minimised as practicable during detailed engineering design
Urea Dust	300 tpa maximum, to be minimised as practicable during detailed engineering design. To include double demisters
Methanol	5 to 20 tpa[3] approximately
Liquid Effluent Discharges:	
Flow:	
– Process Plant	1,700 to 2,200 kL/h [3] approximately
– Desalination Plant	420 kL/h approximately
– Demineralisation Unit	< 20 kL/h approximately
- Stormwater	Uncontaminated stormwater to be diverted around plant and discharged to natural watercourses at appropriate velocity. First flush potentially contaminated stormwater to be retained on site for treatment and reuse and/or discharge to ocean outfall.
Characteristics:	
Temperature	2 to 5 degrees above ambient temperature
Salinity	53,000 mg/L
Nitrogen	43 kg/d, with target to reduce to 20 kg/d during detailed engineering design.
Toxicants	≤ANZECC 99% species protection guidelines for marine waters, exiting the site, except for ammonia and metals which already occur at concentrations above the ANZECC trigger levels in the intake water and recognising the concentrating effect of evaporative seawater cooling. For ammonia the 99% species protection criterion to be met at edge of toxicant mixing zone.

Noise	< 35 dB(A) at nearest noise-sensitive premises ≤65 dB(A) at plant boundary estimated 40-44 dB(A) at Hearson Cove, to be minimised as practicable during detailed engineering design.
Risk	< 1 death/million/year at nearest residence. < 50 deaths/million/year at plant boundary.
Roads	Access roads to and on site, to be decided in consultation with relevant authorities.

Notes:

1 CO_2 'total generated' defines the total amount of CO_2 generated in the ammonia-urea plant, while CO_2 'vented from process' describes the amount of excess CO_2 to be vented to atmosphere. The remainder of the CO_2 generated is used in the manufacture of urea. The proponent cannot mitigate or influence the emissions from the product once sold.

2 CH_4 to be flared.

3 Range to be confirmed during detailed engineering.

Abbreviations:

tpd – tonnes per day
Tj – terajoules
LNG – Liquefied Natural Gas
ML/d – Megalitres per day
KL/h – Kilolitres per hour
Mpag – Megapascals (gauge)
tpa – tonnes per annum
mg/L – milligrams per litre
kg/d – kilograms per day
dB (A) – decibels 'A' weighted
ANZECC – Australia and New Zealand Environment and Conservation Council.

Figures (attached)

Figure 1 - Site location
Figure 2 - Site layout
Figure 3 - Storage shed site options

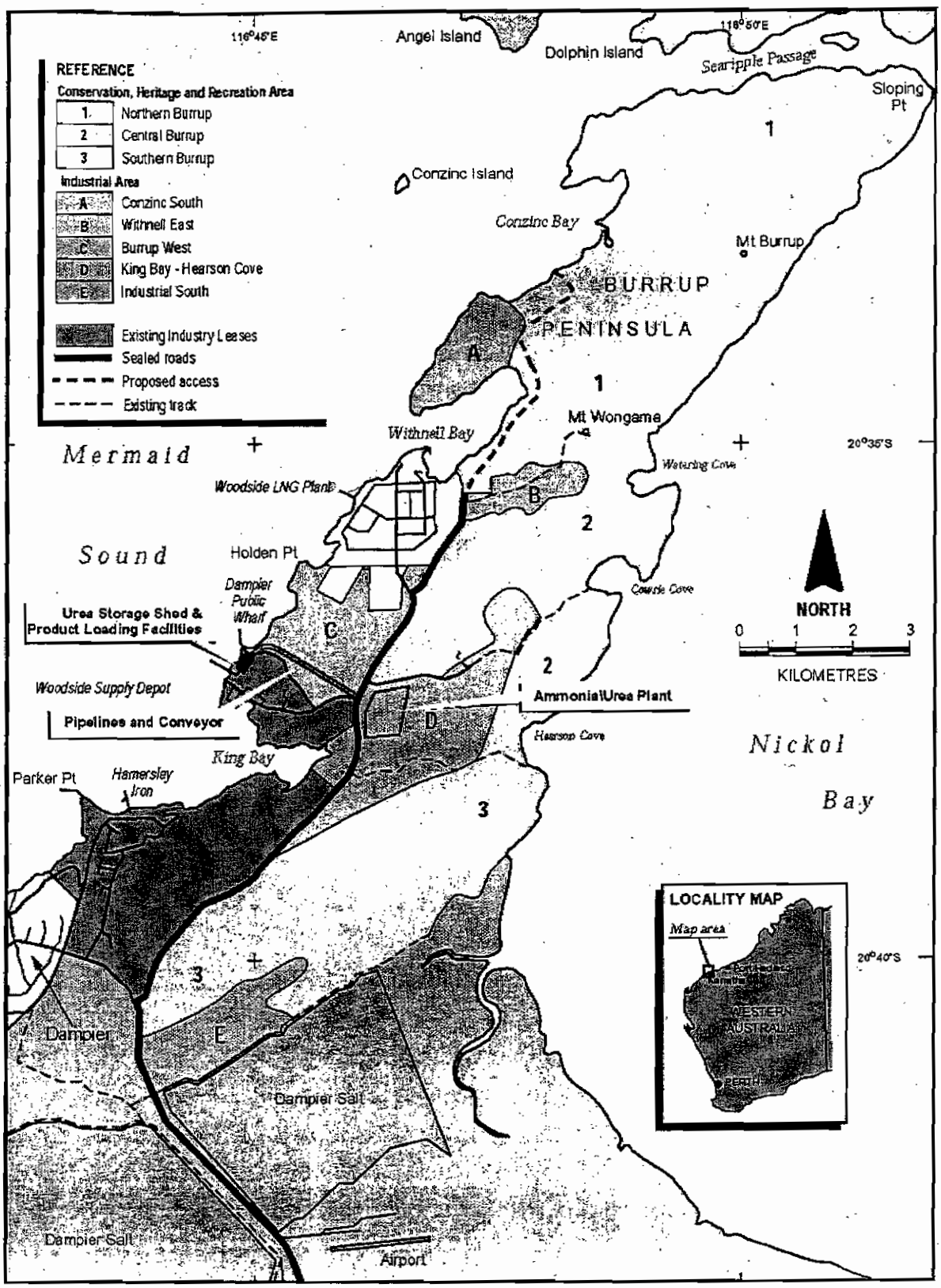

Figure 1: Site Location

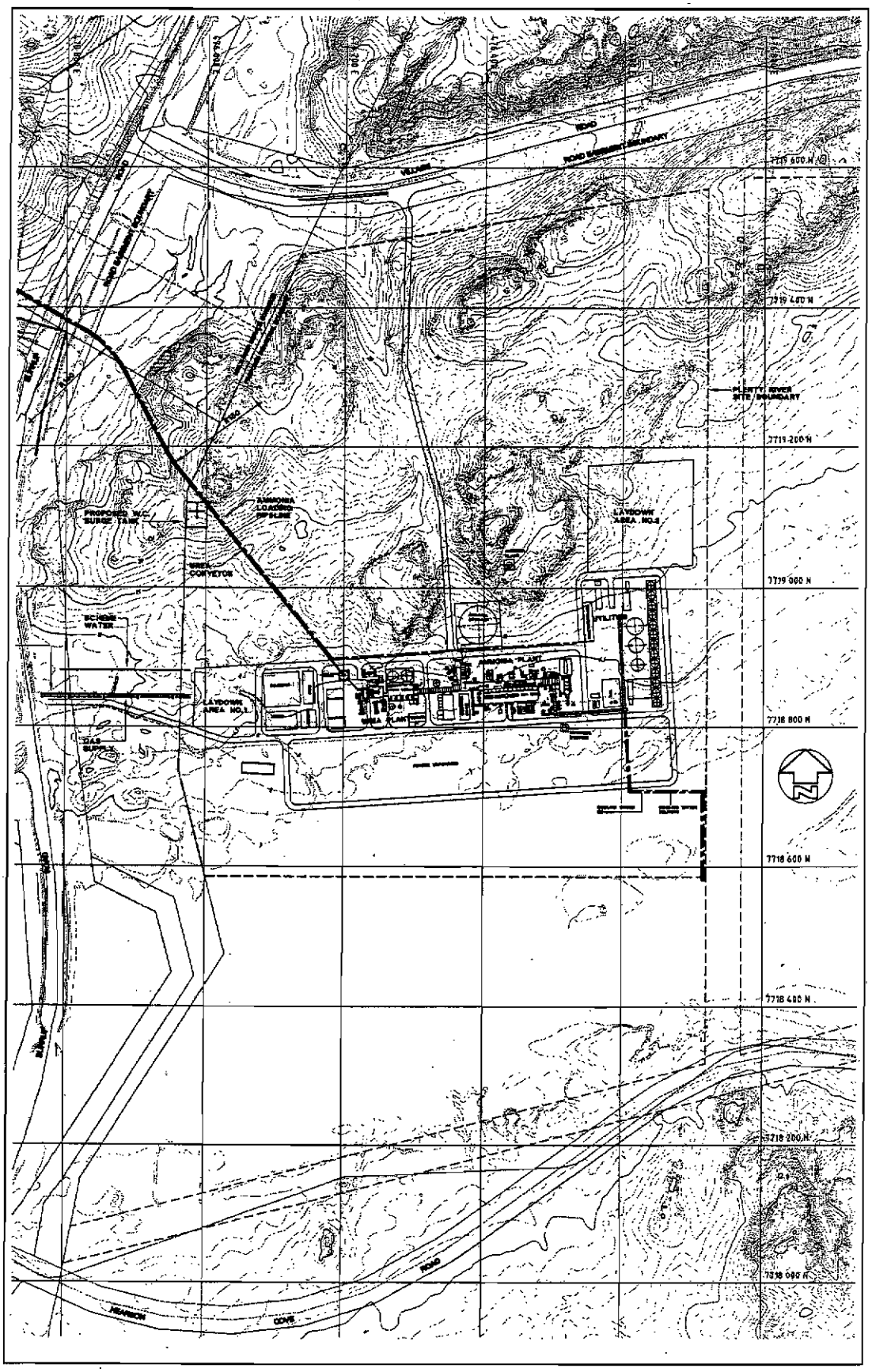

Figure 2: Site Layout

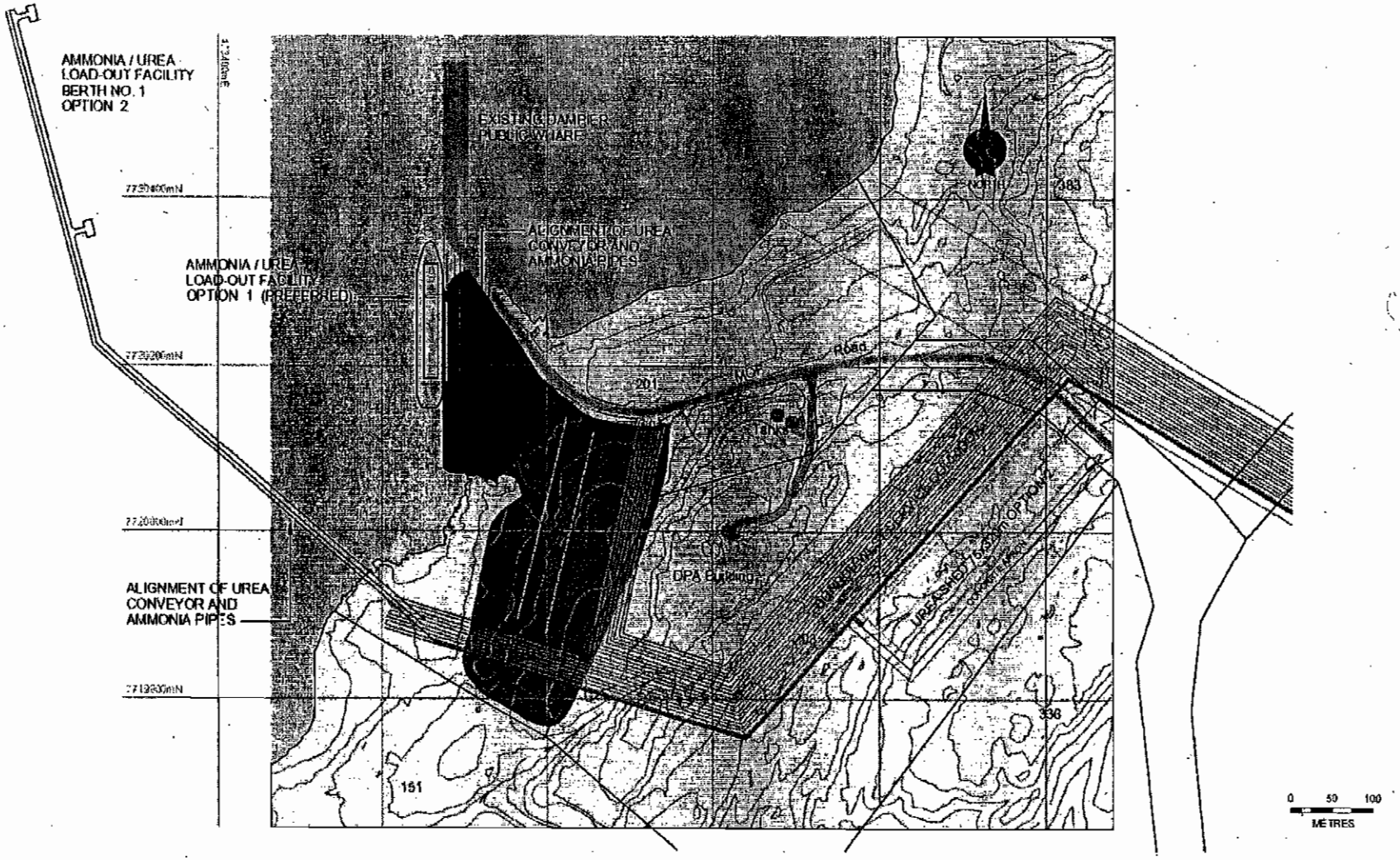

Figure 3: Storage Shed Site Options

Schedule 2

Proponent's Environmental Management Commitments

December 2002

AMMONIA-UREA PLANT
BURRUP PENINSULA
(Assessment No. 1178)

DAMPIER NITROGEN PTY LTD

No.	Topic	Action	Objective	Timing	Advice
Construction Environmental Management					
1	Environmental Management	1) Prepare a Construction Environmental Management Programme (EMP) for the construction of the Plant and infrastructure. The EMP will outline responsibilities and obligations, and will incorporate the following plans and commitments: • Terrestrial flora and vegetation (see commitment 2); • Weeds (see commitment 3); • Fauna Management (see commitment 4); • Culture and Heritage (see commitment 5); • Hydrology and Surface Water (see commitment 6); • Traffic Management (see commitment 7); • Dust Management (see commitment 8); • Noise Management (see commitment 9); • Liquid and Solid Waste Management (see commitment 10); • Hazardous Materials Management (see commitment 11); • Fire Management (see commitment 12). 2) Implement the Construction EMP.	To manage all relevant environmental factors associated with the construction phase of the Project.	Prior to commencement of construction.	
2	Terrestrial flora management	1) Prepare a Terrestrial Flora Management Plan addressing: • locations of vegetation communities and identify areas not to be disturbed through optimisation of plant layout; • site clearance procedures; • procedures for rehabilitating areas of temporary disturbance; • results of an additional vegetation/flora survey at an optimal time following wet season rains; • support for a regional survey of samphire vegetation communities within the King Bay-Hearson Cove valley with other prospective industries. • seed collection of any prominent flora species present, including Priority Flora species, to ensure the availability of species for rehabilitation; • germination trials prior to and following construction, with a particular focus on the Priority 1 species *Terminalia supranitifolia*; • during the rehabilitation process, attempts will be made to restore any Priority Flora species disturbed by the project.	Maintain the abundance, species diversity, geographic distribution and productivity of vegetation communities. Minimise disturbance to vegetation communities during construction. Manage construction impacts on flora, in particular Priority flora.	Pre-construction.	CALM

No.	Topic	Action	Objective	Timing	Advice
		2) Implement the Terrestrial Flora Management Plan.		During Construction	
3	Weed Management	1) Prepare a Weed Management Plan which will include obtaining fill from a weed-free source and identifying best practice weed management procedures in consultation with CALM. 2) Implement the Weed Management Plan.	To prevent the spread of weeds and the introduction of new weed species.	Pre-construction. During construction	CALM, Dept Ag
4	Terrestrial Fauna	1) Prepare a Terrestrial Fauna Management Plan which includes: • ensuring physical disturbance is kept within designated areas; • progressive rehabilitation of disturbed sites to maximise fauna habitat; • results of an additional survey to further investigate the occurrence of Priority Fauna species prior to construction (which, if required, will be updated on a regular basis)*; • 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 (*Liasis olivacea barroni*) on the Burrup Peninsula.** 2) Implement the Terrestrial Fauna Management Plan.	Maintain the abundance, species diversity and geographical distribution of terrestrial fauna. Protect Specially Protected (Threatened) Fauna, consistent with the provisions of the *Wildlife Conservation Act 1950.* Protect fauna listed on the Schedules of the *Environment Protection Biodiversity Conservation Act.*	Pre-construction and ongoing. * on-going if required ** ongoing Pre-construction and ongoing.	CALM
5	Culture and Heritage	1) Prepare an Aboriginal Heritage Management Plan which will encompass: • provision of cultural awareness training for construction and operations workforces*; • results of outstanding ethnographic and archaeological surveys and ongoing consultation; • a heritage monitoring programme during initial site preparation; • procedures for handling any newly discovered sites which may be uncovered; • ensuring that archaeological sites in the vicinity of the Project are marked and protected from potential disturbance during construction; • contribution towards preserving the Burrup's cultural heritage values, as well as indigenous training, employment and contracting opportunities consistent with agreements with Native Title parties.** 2) Implement the Aboriginal Heritage Management Plan.	To preserve Aboriginal heritage sites located within the Project area, and ensure that the proposal does not adversely affect cultural associations of the Project lease.	Pre-construction. * ongoing ** on-going During constructiona and ongoing	DIA Native Title Claimant Groups

No.	Topic	Action	Objective	Timing	Advice
6	Surface Water Management and Hydrology	1) Prepare a Surface Water Management Plan which will manage water discharge from the site. This will address: • avoidance of disturbance to natural drainage lines, where possible; • interception of stormwater from the plant site by a drainage system, and use of sediment retention basin; • erosion control practices to be employed; • minimal disturbance to surface soils through restricted clearing and progressive rehabilitation of temporary disturbance areas; • monitoring and reporting requirements; • minimise disturbance to Ab Im Te / Te Rm vegetation community, and locate stormwater ponds to avoid the community. 2) Implement the Surface Water Management Plan.	Maintain the integrity, functions and environmental values of natural surface water drainage. Maintain the integrity, function and environmental values of watercourses and sheet flow.	Pre-construction and ongoing. During construction and ongoing	CSLC
7	Construction Traffic Management	1) Prepare a Traffic Management Plan so as to minimise disruption of traffic from heavy vehicle movements during construction, maintain public safety and restrict vehicle access to designated routes. 2) Implement the Traffic Management Plan.	To ensure minimum disruption of traffic and maintain safety of public during construction.	Pre-construction Construction	SoR, MRWA, FESA
8	Dust Management	1) Prepare a Dust Management Plan for the construction phase of the project, which will address: • the use of water sprays to wet the site during dry windy conditions; • speed limits to minimise dust generated by vehicle movements; • the use of minimum drop heights when loading and unloading soils and other excavated material; and • minimising areas of disturbed, exposed soils. 2) Implement the Dust Management Plan.	To ensure that dust generated during construction does not cause any environmental or human health problem or significantly impact on amenity.	Pre-construction Construction	
9	Noise Management	1) Prepare a Noise Management Plan for construction activities to ensure suitable work practices are adopted to minimise noise generation, including: • the use of low noise equipment where practicable; • use of silencers where necessary; • use of exhaust mufflers; • noise monitoring and reporting. 2) Implement the Noise Management Plan	Ensure that construction noise emissions comply with Noise Regulations and meet EPA objectives to protect amenity at Hearson Cove.	Pre-construction Construction	
10	Liquid and Solid Waste Management	1) Prepare a Waste Management Plan based on a waste management hierarchy. This will include established procedures for monitoring, recording, disposing and reporting of waste quantities during	To minimise waste and potential for groundwater and surface water contamination or risk to public health.	Pre-construction	SoR

No.	Topic	Action	Objective	Timing	Advice
		construction. 2) Implement the Waste Management Plan.		Construction	
11	Hazardous Materials Management	1) Prepare a Hazardous Materials Management Plan to ensure that hazardous materials are properly handled, segregated, transported, treated and disposed. 2) Implement the Hazardous Materials Management Plan.	To minimise waste and potential for groundwater and surface water contamination or risk to public health.	Pre-construction Construction	
12	Fire Management	1) There will be no demands made on managers of adjacent lands to extinguish any wildfires. 2) In designing the plant layout, the document 'Planning for Bushfire Protection' Dec 2001, FESA & WA Planning Commission will be consulted and incorporated.	Manage bushfires in accordance with CALM requirements commensurate with the protection of life and property.	Pre-construction and ongoing	FESA
Operations Environmental Management					
13	Environmental Management	1) Prepare an Operations Environmental Management Programme (EMP) for the operation of the Plant and infrastructure. The EMP will outline responsibilities and obligations, and will incorporate the following plans and commitments: • Terrestrial flora and vegetation (see commitment 14 & 15); • Fauna Management (see commitment 16); • Culture and Heritage (see commitment 17); • Hydrology and Surface Water (see commitment 18); • Marine Environment (see commitment 19); • Public Health and Safety ((see commitment 20); • Risk (see commitment 21); • Liquid and Solid Waste Management (see commitment 22 & 23); • Hazardous Materials Management (see commitment 24); • Atmospheric Emissions Management (see commitment 25); • Greenhouse Gas Management (see commitment 26); • Noise Management (see commitment 27); • Lighting (see commitment 28); • Visual Amenity (see commitment 29); • Regional Environmental Management (see commitment 30); and • Strategic Planning (see commitment 31). 2) Implement the Operations EMP.	To manage all relevant environmental factors associated with the operation phase of the Project.	Prior to commissioning Commissioning and ongoing	

No.	Topic	Action	Objective	Timing	Advice
14	Terrestrial flora management	1) Prepare a Terrestrial Flora Management Plan addressing details of management of terrestrial flora, vegetation and weeds. 2) Implement the Terrestrial Flora Management Plan.	Maintain species abundance and minimise operation impacts on vegetation and flora.	Pre-commissioning Commissioning and ongoing	CALM
15	Terrestrial flora management	1) Prepare a Landscaping Plan addressing details of management of landscaped areas within the Project area. 2) Implement the Landscaping Plan.	Maintain species abundance and minimise operation impacts on vegetation and flora.	Pre-commissioning Commissioning and ongoing	CALM
16	Terrestrial fauna	1) Prepare a Terrestrial Fauna Management Plan addressing details of management of terrestrial fauna, including fauna observation, handling and translocating procedures. 2) Implement the Terrestrial Fauna Management Plan.	Maintain species abundance and minimise operation impacts on terrestrial fauna.	Pre-commissioning Commissioning and ongoing	CALM
17	Culture and Heritage	1) Prepare an Indigenous Heritage Management Plan addressing details of management to minimise disturbance to areas of cultural significance and promote employee awareness. 2) Implement the Indigenous Heritage Management Plan.	To preserve Aboriginal heritage sites located within the Project area, and ensure that the proposal does not adversely affect cultural associations of the Project lease.	Pre-commissioning Commissioning and ongoing	DIA
18	Hydrology and Surface Water	1) Prepare a Surface Water Management Plan to ensure management of non-contaminated stormwater and potentially contaminated site run off. Establish procedures for testing, monitoring and reporting the quality of site run off, and treatment prior to discharge if required. 2) Implement the Plan.	Maintain the integrity, functions and environmental values of natural surface water drainage.	Pre-commissioning Commissioning and ongoing	WRC
19	Marine Environment	1) Prepare a Marine Water Quality Management Plan which includes: • Procedures for managing and monitoring return water to the WAWC to ensure that acceptance criteria are met, as set in licence conditions; • Adoption of AQIS guidelines, and environmental management requirements of the DPA; • Contribute to a coordinated management response with the WAWC and other system users to reduce inputs if ambient monitoring shows an elevated risk of environmental quality objectives not being met for King Bay; • Monitoring protocols in the event of ammonia spill. 2) Implement the Plan.	Maintain marine ecological integrity and biodiversity and minimise impact of shipping on the marine environment.	Pre-commissioning Commissioning and ongoing.	WAWC, DPA, AQIS WAWC, DPA, AQIS

No.	Topic	Action	Objective	Timing	Advice
		3) If proposed treatment chemicals pose an unacceptable impact or risk to the environment, develop a plan with the DEP (Marine Branch) to mitigate or more completely research this impact. This may include consideration of alternative treatment chemicals and/or a toxicological study on local marine fauna.		Prior to Works Approval	WAWC, DPA
20	Public health and safety	1) Prepare a Safety Management Plan, together with an Emergency Response Plan to enable a rapid response at the plant and product export facilities. The Project will incorporate a range of safety features to minimise risk, including: • nitrogen purge facilities; • blow down systems; • firefighting facilities; • a safety trip and interlock system; • Emergency Shutdown System to initiate automatic shutdown of the plant; and • development of a safety policy and comprehensive training of all operations personnel in all aspects of plant operation including emergency procedures. 2) Implement the Plan.	To ensure that the risk to the public is as low as reasonably practicable (ALARP) and complies with acceptable standards.	Pre-commissioning Commissioning and ongoing	MPR, FESA
21	Risk	1) Undertake a Quantitative Risk Assessment (QRA) and final HAZOP study during detailed design. 2) Prepare an Emergency Response Plan. 3) Contribute to the development of a Burrup Industrial Integrated Emergency Response Plan (BIIERP) with other industries within the King Bay-Hearson Cove Industrial Estate. 4) For the ammonia pipelines, design and operations risk reduction and response procedures will be developed during the design stage, including the development of plant operating procedures. 5) Contribute cooperatively with LandCorp and MPR to the development of an integrated emergency response plan for the multi-user service corridor.	To ensure that the risk to the public is as low as reasonably practicable (ALARP) and complies with acceptable standards. To ensure cooperative measures are in place to integrate emergency response procedures with neighbouring industries to minimise public risk, especially at Hearson Cove. To integrate emergency response procedures and minimise public risk.	Prior to Works Approval Pre-commissioning During operation Pre-commissioning Pre-construction and ongoing	MPR, FESA LandCorp
22	Liquid Waste Management	1) Prepare a Liquid Waste Management Plan which details the management of liquid waste disposal streams, including treatment, monitoring and reporting of wastewater to be returned to the WAWC brine return system.	To minimise waste and potential for groundwater, surface water and seawater contamination or risk to public health.	Pre-commissioning	WAWC

No.	Topic	Action	Objective	Timing	Advice
		2) Implement the Liquid Waste Management Plan.		Commissioning and ongoing	
23	Solid Waste Management	1) Prepare a Solid Waste Management Plan based on a waste management hierarchy. This will include established procedures for monitoring, recording, disposing and reporting of solid waste quantities during operation. 2) Implement the Waste Management Plan.	To minimise waste and potential for groundwater and surface water contamination or risk to public health.	Pre-commissioning Commissioning and ongoing	SoR
24	Hazardous Materials Management	1) Prepare a Hazardous Materials Management Plan to ensure that hazardous materials are properly handled, segregated, transported, treated and disposed, and appropriate response strategies are in place. 2) Implement the Hazardous Materials Management Plan.	To minimise waste and potential for groundwater and surface water contamination or risk to public health.	Pre-commissioning Commissioning and ongoing	
25	Atmospheric Emissions Management	1) Undertake a program of stack emission monitoring to verify current emission estimates, and determine compliance monitoring and reporting requirements in consultation with the DEP (Air Quality Branch). 2) Urea emissions will be no more than 35 mg/m^3.	To minimise the discharge of atmospheric emissions where practicable and maintain compliance with regulatory guidelines.	Operation	CALM
26	Greenhouse Gas Management	1) Join the *Greenhouse Challenge* Program. 2) Develop a Greenhouse Gas Emissions Management Plan to identify *further* 'No Regrets' and 'Beyond No Regrets' opportunities to reduce and offset GHG emissions over the life of the Project, in accordance with the *Greenhouse Challenge* Programme. 3) Implement the Plan. 4) Conduct *further* investigations of possible 'Beyond No Regrets' measures and their respective greenhouse and efficiency gains in consultation with the AGO. 5) Investigate developing greenhouse gas offsets in Western Australia including: • purchase of pastoral leasehold businesses and destocking; • establishment of oil mallee plantations; • establishment of maritime pine and sawlog plantations; and • establishment of commercial Tasmanian bluegum plantations.	To promote continuous improvement in greenhouse emissions management over the life of the Project.	Pre-commissioning Pre-commissioning Ongoing Pre-construction	AGO AGO
27	Noise Management	Further investigate practicable noise reduction measures during the detailed engineering design phase when more definitive plant noise power levels are available, utilising the advice of a mutually acceptable acoustic engineer.	Ensure that operational noise emissions comply with Noise Regulations and minimise the noise impacts on the amenity at Hearson Cove.	Prior to Works Approval	

No.	Topic	Action	Objective	Timing	Advice
28	Lighting	1) Light overspill will be kept to a minimum, using AS 4282 as a guide, consistent with site safety and security requirements. 2) Light sources will be oriented to minimise overspill, whilst providing the required degree of illumination within the plant boundary. Overspill reduction measures such as directional beams and shrouding of the sides and rears of light sources will be employed where practicable.	Manage potential impacts from plant light overspill to visitors at Hearson Cove, and offshore fauna if applicable.	Pre-commissioning	CALM
29	Visual amenity	1) Adopt appropriate paint colour schemes (colour-matching) for the plant infrastructure and urea conveyor system so as to blend into surrounding terrain subject to process requirements. Preserve elevated rocky terrain which will maintain a natural backdrop and minimise visual intrusion on the skyline. 2) Maintain an excellent standard of general "housekeeping" of the plant and associated infrastructure over the life of the Project.	To minimise potential impacts on visual amenity.	Pre-commissioning Ongoing.	OMP
30	Regional environmental management	1) Participate in a future King Bay-Hearson Cove industry group to develop a long-term monitoring/management plan for the King Bay-Hearson Cove industrial area including a cooperative ambient air monitoring programme which may be established with the WA Government. 2) Contribute to cooperative research or baseline monitoring programmes on investigating potential cumulative impacts on molluscan fauna, aboriginal petroglyphs or vegetation.	Minimise the impacts of strategic industrial development on the environmental attributes of the King Bay-Hearson Cove valley.	Pre-commissioning and ongoing. Pre-construction and Ongoing.	OMP, CALM
31	Strategic Planning	1) Consult with other prospective industries and OMP where practicable to ensure efficient use of infrastructure corridor space. 2) Liaise with OMP and MRWA to promote the option for alternative road access alignments within the Project lease with the best overall environmental outcome.	To ensure strategic planning and infrastructure development is undertaken in a coordinated manner.	Pre-construction Pre-construction	OMP OMP, MRWA

Abbreviations

AGO	Australian Greenhouse Office
DeptAg	Department of Agriculture Western Australia
AQIS	Australian Quarantine & Inspection Service
CALM	Department of Conservation and Land Management
CSLC	Commissioner of Soil and Land Conservation
DEP	Department of Environmental Protection
DIA	Department of Indigenous Affairs
DPA	Dampier Port Authority
EPA	Environmental Protection Authority
FESA	Fire and Emergency Services Authority
MPR	Department of Mineral and Petroleum Resources
MRWA	Main Roads Western Australia
OMP	Office of Major Projects
PDC	Pilbara Development Commission
SoR	Shire of Roebourne
WAWC	Water Corporation
WRC	Water and Rivers Commission

Attachment to Statement 614 – Change to Proposal

Proposal: Ammonia-Urea Plant, Burrup Peninsula

Proponent: Dampier Nitrogen Pty Ltd

Change: split of proposal into two parts, an ammonia plant and a urea plant

From:

Element	Quantities/Description
Schedule 1 description	Ammonia-Urea plant

To:

Element	Quantities/Description
Schedule 1 descriptions in new statements	Ammonia plant
	Urea plant

Statement 614 is void as of the date when the two new statements are issued.

Approval Date: 12/10/05