MINISTER FOR THE ENVIRONMENT AND HERITAGE

Statement No.

000586

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

AMMONIA PLANT, BURRUP PENINSULA

Proposal: The construction and operation of a 2,200 tonne per day ammonia plant on the Burrup Peninsula, which utilises a modern version of the conventional natural gas-steam reforming process based on the KBR Purifier Process™ developed by Kellogg Brown and Root, as documented in schedule 1 of this statement.

Proponent: Burrup Fertilisers Pty Ltd

Proponent Address: Level 8, St George's Square,
225 St George's Terrace, PERTH WA 6000

Assessment Number: 1370

Report of the Environmental Protection Authority: Bulletin 1036

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 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 either by 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:

- the major environmental issues 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 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 five years, including improvements in technology and management processes.

6 Closure Plans

6-1 Prior to construction, the proponent shall prepare, and subsequently implement, a Preliminary Closure 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 Closure 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 Closure 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 Closure 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 Closure 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 closure responsibilities are complete.

6-4 The proponent shall make the Final Closure 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 Management Plan

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 Work Practices

8-1 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.

8-2 The proponent shall ensure that the prescription of work practices required by condition 8-1 is implemented.

Procedures

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

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

Notes

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

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

Dr Judy Edwards MLA
MINISTER FOR THE ENVIRONMENT AND HERITAGE

20 FEB 2002

Schedule 1

The Proposal (Assessment No. 1370)

The proposal is to construct and operate an ammonia plant on the Burrup Peninsula, approximately 1300 kilometres north of Perth. The location of the plant is in the King Bay-Hearson Cove Industrial Area, as shown in Figure 1 (attached). The plant site has an area of approximately 72 hectares. The actual plant will occupy an area of approximately 16 hectares.

The ammonia plant will utilise an excess air reforming process based on the KBR Purifier Process™ developed by Kellogg Brown and Root. The plant at design capacity will consume about 74 terajoules of natural gas per day to produce 2,200 tonne per day of ammonia. The ammonia is to be stored as a liquid in either of two 40,000 tonne refrigerated atmospheric pressure ammonia storage tanks, prior to export.

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

Table 1: Summary of key proposal characteristics

Characteristic	Description
Project Purpose	To produce liquid ammonia from natural gas using advanced production technology.
Project Life	25+ years
Plant Capacity	2,200 tonnes per day (design case); 770,000 tonnes per year
Area of Project Lease	73 hectares
Area of Disturbance	*Item* — *Area (hectares)* Ammonia plant — 16.0 Laydown area — 8.0 Desalination plant proposed by Water Corporation — 1.0 Access road and product pipeline to plant — 2.4 Total — 27.4 Approximately — 28 (maximum)
Plant Facilities	Administration, maintenance and warehouse unit Ammonia storage unit Pumps and refrigeration unit Utility unit Control room Ammonia process unit Cooling tower
Plant Operation	24 hours per day, 350 days per year (design case)
Shutdown Time	Planned shutdown – 10 days per annum Emergency shutdown – 5 days per annum for 4 hours per day
Ammonia Storage	2 x 40,000 tonne cryogenic, double-walled, double integrity tanks
Potable Water	7-10 kilolitres per hour
Seawater	Approximately 1.6 megalitres per hour; 38 megalitres per day
Power Generation	Internal generation. Two (1 x operating 100% capacity and 1 x operating 25% capacity) 20 megawatts steam turbine generators. Supply of energy (approx 4 megawatts of electricity) to the desalination plant.

Characteristic	Description
Power Export	None
Emergency Power	Two emergency diesel generators (2.0 megawatts) for start-up power. May also provide power for construction.
Steam Generation	Two (1 x operating and 1 x standby) 100 tonne per hour of medium pressure steam for plant start-up
Low Pressure Steam Export	Capacity for about 10 tonne per hour
Energy Efficiency	Approximately 29.7 ~ 29.9 megajoules per tonne of ammonia (ammonia plant); Approximately 32.6 megajoules per tonne of ammonia (entire project including shipping, transport of product, cooling etc.)
Natural Gas Input	Approximately 74 terajoules per day
Natural Gas Pipeline	Approximately 1.3 kilometres; below ground; from the Dampier to Bunbury Natural Gas Pipeline to the plant; to be constructed by Apache Energy.
Seawater & Brine Pipelines	Approximately 1.2 kilometres; likely to be below ground; from desalination plant to multi-user pipelines along Burrup Road, to be constructed by Water Corporation.
Ammonia Pipeline	Approximately 4.3 kilometres; above ground; from the plant to the Dampier Public Wharf.
Catalysts	Aluminium, cobalt, copper, iron, magnesium, molybdenum and nickel oxides.

Approximate Gaseous Emissions under Normal Operations:	Daily Load (kilograms per day)	Per tonne NH_3 (kilograms per tonne)	Annual Load (tonnes per year)
NO_x	1439	0.65	503
CO_2	4.03×10^6	1832	1,411,000
CO	295	0.13	103
SO_2	1.7	0.0008	0.6
NH_3	Nil	Nil	Nil
VOC	Nil	Nil	Nil

Wastewater Discharges:	Annual Load (kilograms per year)
Heavy metals	Negligible/background
Ammonia (as N)	1
Phosphorus (total)	36.5
Nitrogen (total)	73
Methanol	1
Solid Waste:	Approximate quantities of solid wastes produced:
Demineraliser Spent (Cation/Anion Resin)	27 tonnes every 3 years (Di-vinyl Benzene, Polystyrene Resin)
Desulphuriser Spent Catalyst	33 tonnes every 3 years (zinc oxides); 16 tonnes every 6 years (cobalt and molybdenum oxides)
Biosolids	Stabilised biosolids from wastewater treatment plant
Domestic Waste	Variable quantity disposed to landfill weekly.
Construction Period	Approximately 20 months

Figure

Figure 1 – Project location (attached).

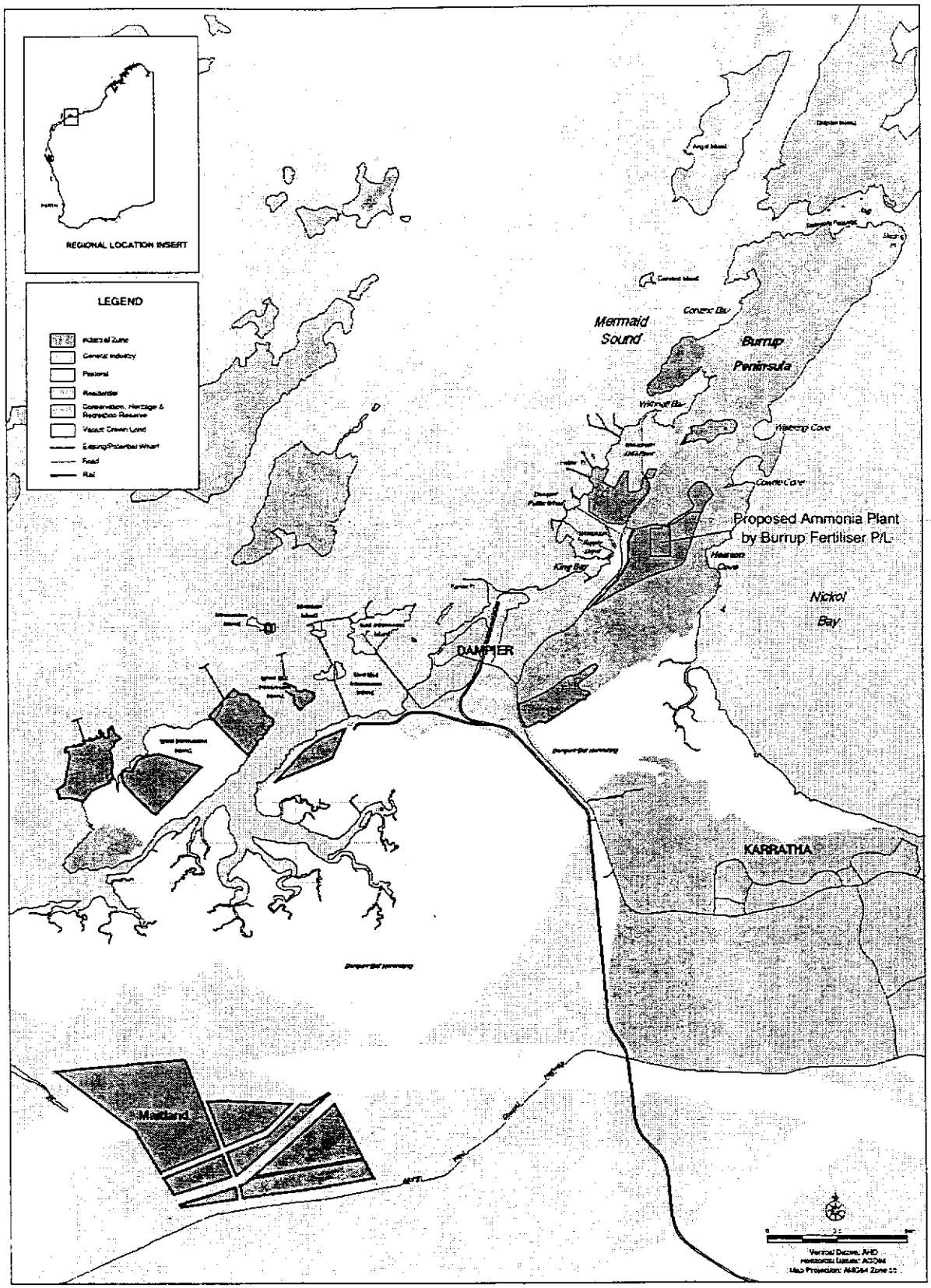

Figure 1. Project location (Source: Figure 2.1 SKM, 2001)

Schedule 2

Proponent's Environmental Management Commitments

21 January 2002

AMMONIA PLANT, BURRUP PENINSULA
(Assessment No. 1370)

BURRUP FERTILISERS PTY LTD

Proponent's Consolidated Environmental Management Commitments – Ammonia Plant, Burrup Peninsula (Assessment No. 1370)

No	Topic	Action	Objective	Timing	Advice
1	Environmental management	1) Prepare an Environmental Management System (EMS) framework for: a) Auditing; b) Reporting; c) Record and communication management; d) Monitoring; e) Checking and corrective actions; f) Environmental training; and g) Registering and responding to public complaints. 2) Implement the EMS.	To manage environmental aspects of the development and minimise environmental impacts.	Prior to construction commencing. Pre-commissioning	
2	Environmental management	Prepare a Construction Environmental Management Program (EMP) for construction of the plant and infrastructure. The program will outline responsibilities and obligations. The Construction EMP will incorporate the following plans: • Rehabilitation; • Weed Management; • Traffic Management; • Water Quality Management; • Erosion Control; • Dust Management; • Blasting Management; • Noise Management; • Waste Management; and • Hazardous Materials Management.	To manage all relevant environmental factors associated with the construction phase of the project.	Pre-construction	

3		Prepare a Rehabilitation Plan that includes: • procedures for rehabilitating areas of temporary disturbance; • the requirement to backfill all excavations and revegetate with local native species; and • the attempt to replace Priority 1 flora (*Terminalia supranitifolia*) that will be disturbed as a result of this proposal. Implement the Rehabilitation Plan.	To maintain biodiversity and ecosystem integrity and minimise impacts on visual amenity	Pre-construction Within 12 months following commission-ing.	CALM
4		Prepare a Weed Management Plan that includes ensuring fill is obtained from a suitable weed-free source. Implement the Weed Management Plan.	To prevent the spread of weeds and the introduction of new weed species.	Pre-construction During construction	CALM
5		Prepare a Traffic Management Plan that includes the requirement for all vehicles to keep to designated tracks. Implement the Traffic Management Plan.	To minimise potential traffic impacts and ensure safety of public during construction.	Pre-construction During construction	Main Roads WA
6		Prepare a Water Quality Monitoring Plan that includes procedures for testing, monitoring and reporting levels of contaminants in stormwater and liquid waste streams to meet DEP and WC acceptance criteria, before discharge off-site. Implement the Water Quality Monitoring Plan.	To maintain the quality of surface, marine and groundwater. To meet water quality acceptance criteria as defined by ANZECC guidelines.	Pre-construction During construction	WC
7		Prepare an Erosion Control Plan that includes procedures for testing, monitoring and reporting of turbidity and sediment loads. Implement the Erosion Control Plan.	To maintain the quality of surface water and marine water and to prevent the off-site deposition of sediment. To identify erosional features.	Pre-construction During construction	Commissioner of Soil and Land Conservation

8		Prepare a Dust Management Plan that includes: • procedures for controlling dust emissions; and • monitoring and auditing procedures. Implement the Dust Management Plan.	To ensure that dust does not cause an environmental or human health problem or adversely impact on amenity.	Pre-construction During construction	
9		Prepare a Blasting Management Plan that includes dust management strategies, if blasting is required. Implement the Blasting Management Plan, if required.	To ensure that dust does not cause an environmental or human health problem or adversely impact on amenity.	Pre-construction During construction	
10		Prepare a Noise Management Plan. Implement the Noise Management Plan.	To ensure that construction noise emissions comply with Regulations and meet EPA objectives to protect amenity at Hearson Cove.	Pre-construction During construction	
11		Prepare a Waste Management Plan based on a waste management hierarchy, which includes procedures for monitoring, recording and reporting waste quantities during construction. Implement the Waste Management Plan.	To minimise potential for groundwater and surface water contamination or risk to public health.	Pre-construction During construction	
12		Prepare a Hazardous Materials Management Plan that includes: • procedures for maintaining an inventory of hazardous materials, storage; • handling requirements; and • emergency response. Implement the Hazardous Materials Management Plan.	To minimise potential for groundwater and surface water contamination or risk to public health.	Pre-construction During construction	MPR & FESA

13		Prepare an Operation Environmental Management Program (EMP) for the operational phase of the plant. The program will incorporate the following plans: • Saline Water Spill Contingency; • Ammonia Spill Contingency; • Waste Management; • Hazardous Materials Management; • Erosion Control; • Water Quality Monitoring; and • Environmental Emergency Response.	To manage all relevant environmental factors associated with the operational phase of the project.	Pre-commissioning	
14		Prepare a Saline Water Spill Contingency Plan that includes details for the continuous monitoring of seawater cooling circuits for pressure, flow and temperature and management measures to minimise impacts from potential spills and to prevent recurrence. Implement the Saline Water Spill Contingency Plan.	To minimise potential for groundwater and surface water contamination.	Pre-commissioning As required	
15		Prepare an Ammonia Spill Contingency Plan that includes procedures to ensure that the transfer of ammonia from the plant to the ship is carefully controlled and management measures to minimise impacts from potential spills and to prevent recurrence. Implement the Ammonia Spill Contingency Plan.	To minimise the potential for spillage of ammonia and potential impacts on water quality, the marine environment and public health.	Pre-commissioning As required	MPR
16		Prepare a Waste Management Plan based on a waste management hierarchy and includes procedures for monitoring, recording and reporting waste quantities during operation. Implement the Waste Management Plan.	To minimise potential for groundwater and surface water contamination or risk to public health.	Pre-commissioning During commissioning	

17		Prepare a Hazardous Materials Management Plan that includes procedures for maintaining an inventory of hazardous materials, storage and handling requirements and emergency response during operation. Implement the Hazardous Materials Management Plan.	To minimise potential for groundwater and surface water contamination or risk to public health.	Pre-commissioning During commissioning	MPR & FESA
18		Prepare an Erosion Control Plan that includes procedures for testing, monitoring and reporting of turbidity and sediment loads. Implement the Erosion Control Plan.	To maintain the quality of surface water and marine water and to prevent the off-site deposition of sediment. To identify erosional features.	Pre-commissioning During commissioning	Commissioner of Soils and Land Conservation
19		Prepare an Environmental Water Quality Monitoring and Management Plan that includes: • procedures for testing, monitoring and reporting levels of contamination in stormwater and process liquid waste streams to meet DEP and WC acceptance criteria, prior to discharge off-site; • a clear outline of monitoring points and parameters that will be measured at each point; • monitoring of methyl diethanolamine in stormwater discharge in the event of a spill; and • specification of water quality acceptance criteria as defined by the DEP and WC and clearly defined criteria that trigger management action. Implement the Environmental Water Quality Monitoring and Management Plan.	To maintain the quality of surface, marine and groundwater.	Pre-commissioning During commissioning	WC

20		Prepare an Environmental Emergency Response Plan that includes the impacts of fire and smoke from adjacent plants and any other emergency situations of adjacent plants. Implement the Environmental Emergency Response Plan.	To ensure that the risk to the environment is as low as reasonably practicable and complies with acceptable standards.	Pre-commissioning During commissioning	FESA
21	Terrestrial flora	Prepare a Terrestrial Flora Management Plan that includes: • plant and infrastructure layout and laydown areas designed to minimise impacts on terrestrial flora. Adequate guidance will be provided in the Construction EMP; • seed collection from the site and immediate vicinity (especially *Dolichandrone heterophylla*); and • germination trials at a local nursery for several prominent flora species, including the Priority 1 species *Terminalia supranitifolia.* Implement the Terrestrial Flora Management Plan.	To minimise the removal of vegetation, particularly avoiding landforms associated with significant vegetation (rockpiles, high scree slopes, drainage lines, low-lying grassed slopes, samphire communities and areas of marine influence), where practicable. To collect an adequate stock of seed for rehabilitation. To develop suitable techniques for the re-establishment of native vegetation on disturbed areas of the project lease.	During detailed engineering design phase. Pre-construction	CALM
22	Terrestrial fauna	Prepare a Terrestrial Fauna Management Plan that includes: • cataloguing the presence and quantity of mounds and burrows made by the Pebble Mound Mouse (*Pseudomys chapmani*); • monitoring burrows to determine if the Pale Field-rat (*Rattus tunneyi*) is present in the area; • following approved evacuation procedures if active mounds and burrows are identified; and	To monitor the presence of significant fauna. To minimise the disturbance and loss of significant fauna.	Pre-construction	CALM

		• contributing to research programs investigating the Pilbara Olive Python, *Planigale* sp. and *"Lerista "muelleri"* on the Burrup Peninsula. Implement the Terrestrial Fauna Management Plan.		During construction (complete catalogue prior to construction then update on a biannual basis thereafter).	
23	Topography and landform	Source fill and gravel as approved by the Shire of Roebourne.	To ensure that no potential adverse impacts occur as a result of the introduction of unsuitable fill and gravel.	Pre-construction.	Shire of Roebourne
24	Stormwater	Design a stormwater drainage system that will: • separate potentially contaminated stormwater from clean stormwater; • divert surface water flows around the plant site; and • incorporate lined storage basins for potentially contaminated stormwater. Construct the stormwater drainage system as designed.	To minimise potential for groundwater and surface water contamination or risk to public health.	During design phase. During construction	
25	Noise	Prepare a Noise Management Plan that includes: • the adoption of noise attenuation measures to meet objectives (indicative overall plant sound power level would be about 115 dB(A), based on preliminary modelling); and • the installation of silencers on gas and steam vents. Implement the Noise Management Plan.	To ensure that noise emissions comply with the Regulations and meet EPA objectives to protect amenity at Hearson Cove.	During design phase During construction	

26	Marine water	Offer to join the committee of Terminal Operators under Dampier Port Authority jurisdiction.	To assist in the implementation of the Dampier Port Authority's Marine Pollution Contingency Plan.	Pre-commissioning.	DPA
27	Gaseous emissions	Investigate and report on the feasibility of: • meeting Best Available Techniques for reformer gas emissions (75 ppmv); and • flaring hydrogen and methane.	To minimise the potential impacts on the environment, human health and amenity from gaseous emissions.	During design phase.	
28	Greenhouse gas emissions	Investigate measures to further reduce emissions of "greenhouse gases" by: • continuing discussions with potential downstream processing facilities on the Burrup to take carbon dioxide off-gas; • undertaking further investigations into the establishment of tree farms to sequester carbon dioxide from the atmosphere; and • generating power to replace other non-renewable fuels. Adopt practicable and feasible measures to offset carbon dioxide.	To minimise emissions of greenhouse gas to atmosphere in accordance with Commonwealth and State policies.	Ongoing.	
29	Greenhouse gas emissions	Enter the Greenhouse Challenge.	To minimise emissions of "greenhouse gases" to atmosphere in accordance with Commonwealth and State policies.	Pre-commissioning with ongoing participation, thereafter.	
30	Liquid Wastes	Treat liquid waste streams to reduce concentrations of total dissolved solids, chlorine, biocides, ammonia, methanol, phosphorus and nitrogen as low as reasonably practicable and for waste streams to meet Water	To minimise potential for groundwater and surface water contamination or risk to public health.	During design phase.	

		Corporation and DEP acceptance criteria, prior to discharge into the saline water outlet pipeline.			
31	Liquid Wastes	Contain methyl diethanolamine solution within a closed pipeline loop that can be drained to a sump.	To maintain the quality of surface and groundwater and protection of ecosystems or risk to public health.	During design phase.	
32	Risk	Submit a Safety Report, including the details of the Safety Management System and a QRA for the operations of the plant, export pipeline and the loading facility.	To ensure that the risk to the public is as low as reasonably practicable and complies with acceptable standards.	Pre-commissioning	MPR (to the satisfaction of the Chief Inspector of Explosives and Dangerous Goods)
33	Risk	The plant and export facility will include the following: • the storage of ammonia in refrigerated and double walled, double integrity tanks; • emergency release couplings to close wharf isolation valves; • an ammonia transfer Emergency Shutdown System automatically activated on a no-flow or flow differential signal; • water curtains/sprays at the ammonia distillation, ammonia scrubber and ammonia refrigeration sections; and • barriers along sections of the ammonia export line, if recommended in the QRA.	To ensure that the risk to the public is as low as reasonably practicable and complies with acceptable standards.	During design phase	MPR
34	Risk	Ammonia loading risk mitigation measures will include: • stationing an operator at the wharf throughout the loading operation with access to an emergency shutdown button;	To ensure that the risk to the public is as low as reasonably practicable and complies with acceptable standards.	During ammonia loading operation.	

		• monitoring the loading operation continuously by plant personnel from the control room via camera surveillance; and • ceasing all other activity on the wharf during ammonia loading operations. •			
35	Risk	Revise the size of the ammonia loading exclusion zone (currently proposed to be 200m) at the wharf, based on risk assessment (not annualised) or consequence analysis.	To ensure that the risk to the public is as low as reasonably practicable during ammonia loading.	Pre-commissioning	MPR
36	Risk	Provide access to fire fighting water outside of plant site.	To facilitate fire fighting for CALM and fire brigade.	Pre-commissioning	
37	Aboriginal Heritage	Prepare an Aboriginal Heritage Management Plan that includes: • employing Aboriginal representatives to monitor all ground disturbances and earthworks; • establishing an Aboriginal cultural awareness program and include within employee induction and training programme; • restricting access to Aboriginal heritage sites; and • assisting with the protection and management of heritage sites adjacent to the proposed lease area. Implement the Aboriginal Heritage Management Plan.	To ensure that changes in the biological and physical environment resulting from the proposal do not adversely affect cultural associations of the project lease.	Pre-construction During construction	DIA
38	Visual amenity	Prepare a Visual Amenity Plan that includes: • colouring buildings to blend into the surrounding terrain, where possible; and • maintaining a good housekeeping standard. Implement the Visual Amenity Plan.	To minimise potential impacts on visual amenity.	During design phase Construction	

39	Regional environmental impacts	Seek membership to a King Bay – Hearson Cove industry group (if such a group is developed). Participate and assist in the following recommended objectives of the industry group: a) develop a long-term monitoring/management plan for the King Bay-Hearson Cove Industrial Area; b) coordinate a regional survey of molluscan fauna; c) coordinate infrastructure and services on the Burrup Peninsula; d) develop a Burrup Industrial Integrated Emergency Plan; e) coordinated cumulative noise monitoring at Hearson Cove; and f) collaborative study investigating measures to minimise injury to birds and to encourage their continual residence on the Burrup.	To minimise the impacts of industry on the environmental attributes of the King Bay – Hearson Cove Valley. To increase knowledge base of existing status and distribution of molluscan fauna. To create synergies with other industries and to ensure that infrastructure and services are not constrained. To ensure that the risk to the public is as low as reasonably practicable and complies with acceptable standards.	During operation.	OMP CALM Shire of Roebourne MRWA MPR
40	Plant decommissioning	Remove all equipment, waste products and foundations to a depth of 400 millimetres and ensure that the plant site is restored as near as possible to its 'as found' and safe condition.	To restore the project lease as near as possible to its 'as found' condition. To ensure that the site is left in a safe condition and there is no risk to public safety.	Decommissioning.	
41	Plant decommissioning	In the event that the plant is shut down for an extended period (more than 3 months), it will be placed under care and maintenance and will be maintained by allocated care and maintenance support personnel.	To ensure that the plant is kept in a 'ready' and 'working order' state for start-up until ammonia production recommences.	Decommissioning.	

Abbreviations

CALM – Department of Conservation and Land Management
DEP – Department of Environmental Protection
DIA – Department of Indigenous Affairs
DOLA – Department of Land Administration
DPA – Dampier Port Authority
FESA – Fire and Emergency Services Authority
MPR – Department of Mineral and Petroleum Resources
MRWA – Main Roads Western Australia
OMP – Office of Major Projects
QRA - Quantitative Risk Assessment
Shire – Shire of Roebourne
WC - Water Corporation

MINISTER FOR THE ENVIRONMENT

Our Reference: 29734
Your Reference: WV02386.115

Vikas Rambal
Deputy Managing Director
Burrup Fertilisers Pty Ltd
Level 8 St georges Square
225 St Georges Terrace
Perth WA 6000

Dear Mr Rambal

PROPOSED REFINEMENTS IN SCHEDULE 1 OF MINISTERIAL STATEMENT 586 FOR AMMONIA PLANT, BURRUP PENINSULA

Thank you for your letter of 4 March 2004 requesting a number of changes to the proposed Ammonia Plant, Burrup Peninsula. The proposed changes include the following:

- to increase in the capacity of the two captive power plants from 20 to 22 Megawatts (MWs);
- to change the package (plant start-up) boiler configuration from two 100 tonne per hour (tph) boilers to a 150 and 50 tph boiler; and
- to install one 5 Megawatt emergency diesel generator instead of two 2 MW emergency diesel generators.

Under Section 45C of the *Environmental Protection Act 1986* I am able to approve changes to a proposal, without a revised proposal being submitted to the Environmental Protection Authority (EPA), when it is considered that the changes will not have a significant adverse environmental impact.

On the advice of the EPA I understand these changes will have no significant additional environmental impact.

I have concluded that the requested changes do not result in additional significant adverse impacts on the environment, and may produce some positive environmental outcomes. Approval is therefore granted under Section 45C of the *Environmental Protection Act 1986* for the requested changes.

I note that in your letter of 4 March 04 you were also seeking approval to use the Dampier Port Authority Bulk Liquids Jetty for the export of ammonia once it is operational. The EPA has advised that additional information is being sought and that this matter should be considered separately.

Yours sincerely

ORIGINAL SIGNED

8 OCT 2004

DR JUDY EDWARDS MLA

Dr Judy Edwards MLA
MINISTER FOR THE ENVIRONMENT

MINISTER FOR THE ENVIRONMENT

Our Reference:
Your Reference: WV02386.115

Vikas Rambal
Deputy Managing Director
Burrup Fertilisers Pty Ltd
Level 8 St Georges Square
225 St Georges Terrace
Perth WA 6000

Dear Mr Rambal

APPROVAL TO EXPORT AMMONIA FROM THE NEW DAMPIER PORT AUTHORITY BULK LIQUIDS JETTY (ASSESSMENT NO. 1370)

On 4 March 2004 and 29 September 2004 you wrote to the Chairman of the Environmental Protection Authority (EPA) regarding a proposal to change the approved project by exporting ammonia from Stage 1 of the Dampier Port Authority Bulk Liquids Jetty once it is operational.

This proposal was not considered as part of the EPA assessment in Bulletin No. 1036 and authorised by Ministerial Statement No. 586. However, under Section 45C of the *Environmental Protection Act 1986* I am able to approve changes to a proposal, without a revised proposal being submitted to the EPA, when it is considered that the changes will not have a significant adverse environmental impact.

I note that should the Bulk Liquids Jetty be extended in the future, Burrup Fertilisers has advised that it will seek formal approval to shift its operations to Stage 2 of the jetty and request changes to the wording of commitment 34 of Ministerial Statement No. 586.

On the advice of the EPA I understand that the environmental impacts associated with the proposal will be managed in accordance with the existing Ministerial Conditions and Proponent Commitments of Ministerial Statement No. 586. I understand that the proposed change does not raise any new environmental issues to those considered in the EPA's 2001 assessment. For this reason I consider that the proposed change, is unlikely to result in significant detrimental changes to the environmental impacts of the approved proposal. Conditional approval is therefore granted under Section 45C of the *Environmental Protection Act 1986* to use Stage 1 of the new Bulk Liquids Jetty for the export of ammonia up until such time that the jetty is extended to enable other ships to be loaded/unloaded concurrently.

I recommend that you consider a request for a Section 46 amendment to commitment 34 of Ministerial Statement No. 586 in the near future to address the ship unloading/loading restrictions.

Yours sincerely

Dr Judy Edwards MLA
MINISTER FOR THE ENVIRONMENT

cc: Walter Cox, EPA Chairman

File date: Created 20 October 2004

Attachment to Statement 586 – Change to Description of Proposal.

Proposal: Ammonia Plant, Burrup Peninsula

Proponent: Burrup Fertilisers Pty Ltd

Change: to a Schedule 1 characteristic (start-up steam generation)

From:

Element	Quantities/Description
Start-up process with steam generation	Two 100 tonne per hour package boilers operated simultaneously for start-up and operations.

To:

Element	Quantities/Description
Start-up process with steam generation	One 50 tonne per hour package boiler for start-up, then a 150 tonne package boiler for operations.

Approval Date: 13 DEC 2005

Attachment to Statement 586 – Change to Description of Proposal.

Proposal: Ammonia Plant, Burrup Peninsula

Proponent: Burrup Fertilisers Pty Ltd

Change: (1) to a commitment (isolation valves along the ammonia export pipeline); and,
(2) to a description in the Public Environmental Review of the ammonia export process, specifically, the management of liquid ammonia in the pipeline.

Features of approved Proposal:

Element	Quantities/Description
Isolation valves on pipeline	An unspecified number of isolation valves will be installed along the pipeline.
Ammonia export pipeline	After loading the ship, liquid ammonia in the pipeline will gravitate to either the wharf or the plant, where it will be boiled off or refrigerated, and the pipeline is left empty.

Features of changed Proposal:

Element	Quantities/Description
Isolation valves on pipeline	Isolation valves along the pipeline in accordance with the Export Licence and Dangerous Goods Storage Licence.
Ammonia export pipeline	After loading the ship, the pipeline is left full of recirculating liquid ammonia. Installation of an ammonia leak suppression system in accord with the Dangerous Goods Storage Licence.

Approval Date: 11 SEP 2006

Attachment 5 to Ministerial Statement 586

Change to proposal approved under Section 45C of the *Environmental Protection Act 1986*

This Attachment replaces Schedule 1 and previous attachments of Ministerial Statement No. 586

Proposal: Ammonia Plant, Burrup Peninsula

Proponent: Yara Pilbara Fertilisers Pty Ltd

Changes:

- an increase in disturbance from 28 hectares to 29 hectares
- an increase in ammonia production capacity;
- an increase in atmospheric emissions;
- an increase in wastewater discharge and some contaminant concentrations; and
- amendments to the structure and content of Table 1: Summary of key proposal characteristics in Schedule 1 in Ministerial Statement No. 586 to reflect the above changes and to align its format with the requirements of Environmental Assessment Guideline EAG 1: *Environmental Assessment Guideline for Defining the Key Characteristics of a Proposal*.

Table 1: Summary of the proposal

Proposal Title	Ammonia Plant, Burrup Peninsula
Proponent Name	Yara Pilbara Fertilisers Pty Ltd
Short Description	The proposal is to produce liquid ammonia from natural gas using advanced production technology on a site located within the King Bay-Hearson Cove Industrial Area on the Burrup Peninsula, approximately 11 km north-west of Karratha in the Pilbara region.

Table 2: Location and authorised extent of physical and operational elements

Element	Previously Authorised Extent	Authorised Extent
Project purpose	To produce liquid ammonia from natural gas using advanced production technology	**Removed as is incorporated into the Short Description**
Project life	25+ years	**Removed as not a key proposal characteristic**
Plant capacity	2,200 t/day (design case); 770,000 t/yr	**No more than 2,600 t/day**
Area of project lease	73 ha	**Removed as not a key proposal characteristic**

Element	Previously Authorised Extent		Authorised Extent
Area of disturbance	Item Ammonia plant Laydown area Desalination plant proposed by Water Corporation Access road and product pipeline to plant	Area (ha) 16 8 1 2.4	**Clearing of no more than 29 ha within a 73 ha development envelope**
	Total Approximately	27.4 28 (maximum)	
Plant facilities	Administration, maintenance and warehouse unit Ammonia storage unit Pumps and refrigeration unit Utility unit Control room Ammonia process unit Cooling tower		**Removed as not a key proposal characteristic**
Plant operation	24 hours per day, 350 days per year (design case)		**Removed as not a key proposal characteristic**
Shutdown time	Planned shutdown – 10 days per annum Emergency shutdown – 5 days per annum for 4 hours per day		**Removed as not a key proposal characteristic**
Ammonia storage	2 x 40,000 tonne cryogenic, double walled, double integrity tanks		**Removed as can be regulated under the *Dangerous Goods Safety Act 2004* and the Dangerous Goods Safety (Major Hazard Facilities) Regulations 2007**
Potable water	7-10 kilolitres per hour		**Removed as not a key proposal characteristic**
Seawater	Approximately 1.6 megalitres per hour, 38 megalitres per day		**Removed as is regulated under Ministerial Statement 594**
Power generation	Internal generation. Two (1 x operating 100% capacity and 1 x operating 25% capacity) 22 megawatt steam turbine generators		**Removed as can be regulated under Part V of the *Environmental Protection Act 1986***
Power export	None		**Removed as not a key proposal characteristic**
Emergency power	One emergency diesel generator (5.0 megawatts) for start-up power. May also provide power for construction		**Removed as not a key proposal characteristic**

Element	Previously Authorised Extent			Authorised Extent
Steam generation	One 50 tonne per hour package boiler for start-up and a 150 tonne package boiler for operations			**Removed as not a key proposal characteristic**
Low pressure steam export	Capacity for about 10 tonne per hour			**Removed as not a key proposal characteristic**
Energy efficiency	Approximately 29.7 – 29.9 megajoules per tonne of NH_3 (ammonia plant); Approximately 32.6 megajoules per tonne of NH_3 (entire project including shipping, transport of product, cooling etc)			**Removed as not a key proposal characteristic**
Natural gas input	Approximately 74 terajoules per day			**Removed as not a key proposal characteristic**
Natural gas pipeline	Approximately 1.3 km; below ground from the Dampier to Bunbury Natural Gas Pipeline to the plant; to be constructed by Apache Energy			**Removed as not a key proposal characteristic**
Seawater and brine pipelines	Approximately 1.3 km; likely to be below ground from the desalination plant to multi-user pipelines along Burrup Road; to be constructed by Water Corporation			**Removed as not a key proposal characteristic**
Ammonia pipeline	Approximately 4.3 km; above ground from the plant to the Dampier Public Wharf			**Removed as not a key proposal characteristic**
Catalysts	Aluminium, cobalt, copper, iron, magnesium, molybdenum and nickel oxides			**Removed as not a key proposal characteristic**
Approximate gaseous emissions under normal operations	Daily Load (kilograms per tonne)	Per tonne NH_3 (kilograms per tonne)	Annual Load (tonnes per year)	**CO_2 removed as can be regulated under the *National Greenhouse and Energy Reporting Act 2007*. All other gaseous emissions removed as can be regulated under Part V of the *Environmental Protection Act 1986***
NO_X	1,439	0.65	503	
CO_2	4.03×10^{-6}	1,832	1,411,000	
CO	295	0.13	103	
SO_2	1.7	0.0008	0.6	
NH_3	Nil	Nil	Nil	
VOC	Nil	Nil	Nil	
Wastewater discharges: Heavy metals Ammonia as (N) Phosphorus (total) Nitrogen (total) Methanol	Annual load (kg/yr) Negligible/background 1 36.5 73 1			**Removed as can be regulated under Part V of the *Environmental Protection Act 1986***

Element	Previously Authorised Extent	Authorised Extent
Solid waste	Approximate quantities of solid wastes produced	**Removed as this can be regulated under Part V of the *Environmental Protection Act 1986***
Demineraliser spent (cation/anion resin)	27 tonnes every 3 years (di-vinyl benzene, polystyrene resin)	
Desulfuriser spent catalyst	33 tonnes every three years (zinc oxides); 16 tonnes every 6 years (cobalt and molybdenum oxides)	
Biosolids	Stabilised biosolids from wastewater treatment plant	
Domestic waste	Variable quantity disposed to landfill weekly	
Construction period	Approximately 20 months	**Removed as not a key proposal characteristic**

Note: Text in **bold** in Table 2 indicates a change to the proposal.

Table 3: Abbreviations

Abbreviation	Term
CO	carbon monoxide
CO_2	carbon dioxide
ha	hectare
kg/yr	kilograms per year
km	kilometre
NH_3	ammonia
NO_X	oxides of nitrogen
SO_2	sulphur dioxide
t/day	tonnes per day
t/yr	tonnes per year
VOC	volatile organic compounds

Table 4: Project Co-ordinates (MGA Zone 50)

Coordinate No.	Easting	Northing
1	477316	7719847
2	477564	7719790
3	477565	7719724
4	477610	7719718
5	477606	7718744
6	476908	7718744
7	476908	7719742
8	477316	7719746

All co-ordinates are in metres, listed in Map Grid of Australia Zone 50 (MGA Zone 50), datum of Geocentric Datum of Australia 1994 (GDA94).

Figures (attached)

Figure 1: Development envelope (This figure is a representation of the co-ordinates shown in Table 4)

[Signed 5 August 2015]

Dr Paul Vogel
CHAIRMAN
Environmental Protection Authority
under delegated authority
Approval date: _____

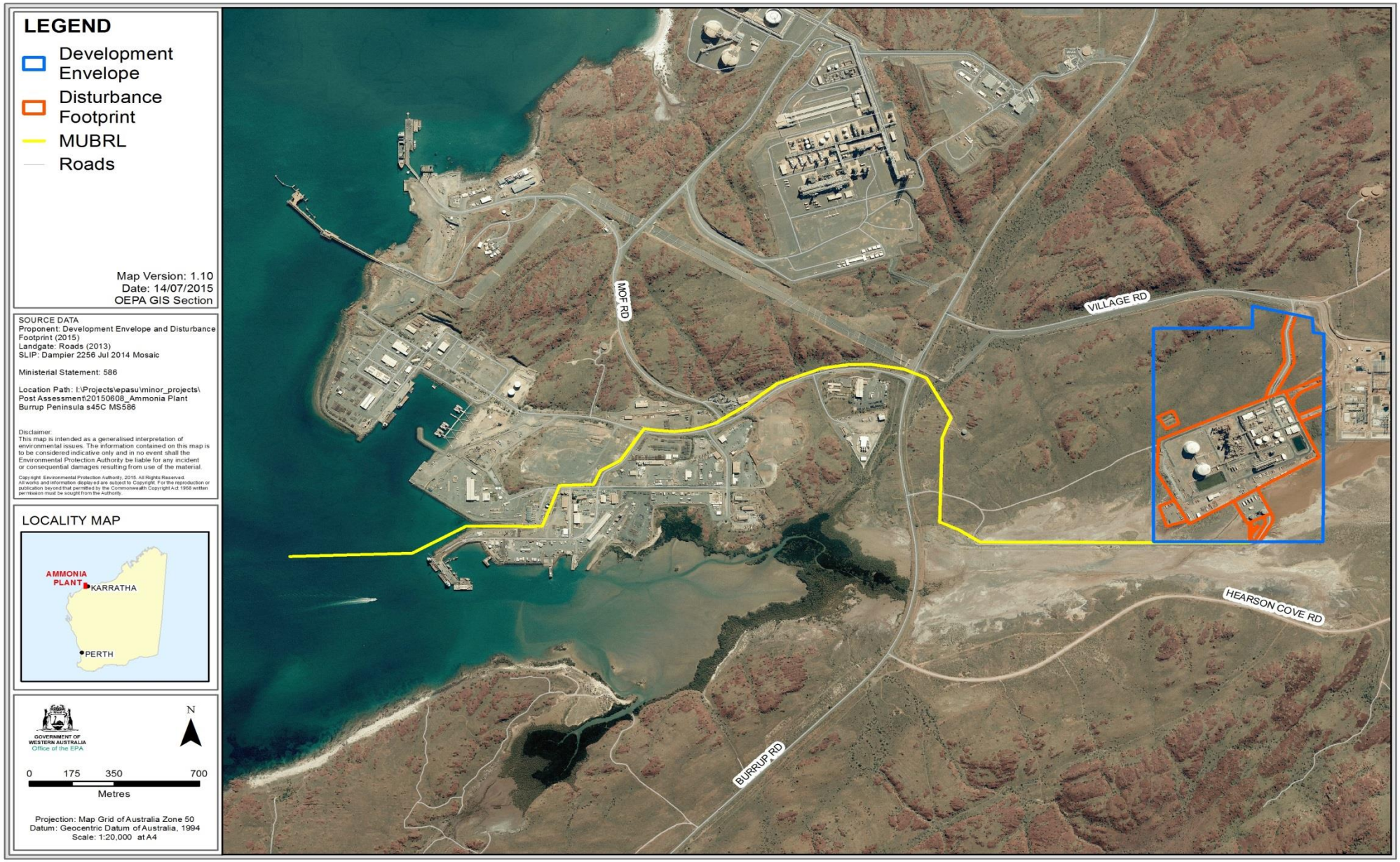

Figure 1: Development envelope