

LEGISLATIVE COUNCIL
Question Without Notice

Tuesday, 25 June 2019

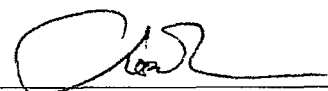
C670. Hon Robin Chapple to the Minister for Environment

I refer to QON 2098 asked by Hon Robin Chapple to the Minister for Environment and ask:

1. Has the search through hardcopy archives for superseded versions 1, 2, 3, 5 and 9 of the Licences in respect of Works Approvals, Licences to operate and Amendment Notices for the Yara Pilbara Fertiliser Plant (formerly Burrup Fertiliser Plant) and the Yara Pilbara Nitrates Pty Ltd plant been concluded?
2. If yes to 1.) will the minister table the Licences?
3. If no to 1.) why not?
4. If no to 2.) why not?

Answer

1. Yes.
2. I now table superseded versions 1, 2, 3, 5 and 9 of the Licences referred to in QON 2098.
3. – 4. Not applicable



Hon Stephen Dawson MLC
**MINISTER FOR ENVIRONMENT;
DISABILITY SERVICES; ELECTORAL AFFAIRS**



Department of
Environment

Your ref:

Our ref:

Enquiries: L12/02

Direct tel: Anne Trevena

9144 0229

The Manager
Burrup Fertilisers Pty Ltd
Level 8, St Georges Square, 225 St Georges Terrace
PERTH WA 6000

Dear Sir/Madam

ENVIRONMENTAL PROTECTION ACT 1986 - LICENCE

**Burrup Ammonia Plant (Burrup Fertilisers), De Witt Location 564, Vol 3125, Folio 243
King Bay-Hearson Cove Industrial Area
Burrup Peninsula WA**

You are advised that your application for a licence to operate the works prescribed under the *Environmental Protection Act 1986* at the above-mentioned location has been approved subject to the attached conditions. Enclosed is your licence together with receipt number, DOE-02595 for the prescribed fee.

If any aspect of the conditions of licence aggrieves you, you may lodge an appeal, accompanied by the \$50.00 fee, with the Minister for the Environment; Science within 21 days from the date on which this licence is received. Members of the public may also appeal conditions. Please contact the Appeals Registrar at the Appeal Convenor's Office on 9221 8711 after the closing date of appeals to check whether any appeals were received.

Under Section 58 of the *Environmental Protection Act 1986*, it is an offence to contravene a licence condition. This offence carries a penalty of up to \$125,000, with a daily penalty of up to \$25,000. The Department considers that a breach of this section, or any other section, of the *Environmental Protection Act 1986* to be extremely serious.

If you have any questions relating to the licence or licence conditions, please do not hesitate to contact Anne Trevena of the North West Region on 9144 0229.

Yours faithfully

Susan Worley
REGIONAL MANAGER, NORTH WEST

Tuesday, 18 April 2006

encs: Licence Number: 7997/2
Receipt Number: DOE-02595
copy to: Local Government Authority: Shire of Roebourne



North West Region
Lot 4608 Cherratta Road KIE
Karratha Western Australia 6714
PO Box 836 Karratha Western Australia 6714
Telephone (08) 9144 2000 Facsimile (08) 9144 2610
www.environment.wa.gov.au

WESTERN AUSTRALIA
DEPARTMENT OF ENVIRONMENT

Environmental Protection Act 1986

LICENCE

LICENCE NUMBER: 7997/2

FILE NUMBER: L12/02

NAME OF OCCUPIER:

Burrup Fertilisers Pty Ltd

ADDRESS OF OCCUPIER:

Level 8, St Georges Square, 225 St Georges Terrace
Perth WA 6000

NAME AND LOCATION OF PREMISES:

Burrup Ammonia Plant (Burrup Fertilisers)
De Witt Location 564, Vol 3125, Folio 243 King Bay-Hearson Cove Industrial Area
Burrup Peninsula WA

Environmental Protection Regulations 1987

CLASSIFICATION(S) OF PREMISES:

Category 31 - Chemical manufacturing
Category 52 - Electric power generation


COMMENCEMENT DATE OF LICENCE: Friday, 21 April 2006

EXPIRY DATE OF LICENCE: Friday, 20 April 2007

CONDITIONS OF LICENCE:

As described and attached:

DEFINITIONS (18)
GENERAL CONDITION(S) (3)
WATER POLLUTION CONTROL CONDITION(S) (1)
MARINE POLLUTION CONTROL CONDITION(S) (4)
AIR POLLUTION CONTROL CONDITION(S) (3)
ATTACHMENTS (4)


Susan Worley
Officer delegated under Section 20
of the *Environmental Protection Act 1986*

Date of Issue: Tuesday, 18 April 2006

WESTERN AUSTRALIA
DEPARTMENT OF ENVIRONMENT

Environmental Protection Act 1986

LICENCE NUMBER: 7997/2

FILE NUMBER: L12/02

Applicability

This Licence is issued to Burrup Fertilisers Pty Ltd, De Witt Location 564, Vol 3125, Folio 234 King Bay-Hearson Cove Industrial Area, Burrup Peninsula (Attachment 1), which is a prescribed premises within Schedule 1 of the *Environmental Protection Regulations 1987*, as shown in Table 1.

Table 1: Categories under which Burrup Fertilisers Pty Ltd is prescribed

Category Number	Category Name	Description
31	Chemical Manufacturing	Other than Cat 32, on which chemical products are manufactured by a chemical process.
52	Electric Power Generation	Other than 53, on which electrical power is generated using a fuel

Burrup Fertilisers Pty Ltd includes the following operations:

- use of the existing Dampier Cargo Wharf for an initial shipment of ammonia;
- use of the Bulk Liquids Jetty for export and import of liquid ammonia;
- wastewater collection, treatment and disposal system;
- ammonia plant designed to produce 2,200 tonnes ammonia per day;
- primary and secondary reformers (ammonia production unit);
- captive power plant comprising two 22MW units;
- two package boilers (of 150 tonnes per hour and 50 tonne per hour capacity) supplying medium pressure steam for plant start-up;
- air drying unit and two air compressors;
- catalyst loading and unloading facilities;
- two 40,000 tonne atmospheric pressure, cryogenic ammonia storage tanks, complete with a single flare stack;
- closed circuit seawater-freshwater cooling system;
- two seawater cooling towers;
- demineralisation water plant;
- sulphuric acid and caustic unloading, storage and distribution facilities;
- inert gas generation unit of gaseous nitrogen and on-site storage of liquid nitrogen;
- chlorine dosing facility; and
- one 5 MW emergency diesel generator

WESTERN AUSTRALIA
DEPARTMENT OF ENVIRONMENT

Environmental Protection Act 1986

LICENCE NUMBER: 7997/2

FILE NUMBER: L12/02

CONDITIONS OF LICENCE

DEFINITIONS

In these Conditions of Licence, unless inconsistent with the text or subject matter:

"Annual Report" means the report produced by the Licensee in accordance with Conditions G1(a) and G1(b);

"Burrup Fertilisers" means Burrup Fertilisers Pty Ltd;

"Brine Return Line" means the desalination plant brine return pipeline operated by the Water Corporation;

"CFU" means Colony Forming Unit;

"Director" means Director, Environmental Management Division, or other delegated officer, of the Department of Environment for and on behalf of the Chief Executive Officer as delegated under Section 20 of the *Environmental Protection Act 1986*;

"Director" for the purpose of notifications and correspondence means:

Manager, North West Region
Department of Environment
PO Box 836
KARRATHA WA 6714

Telephone: (08) 9144 2000
Facsimile: (08) 9144 2016;

"Emergency Flaring" means flaring for in excess of 5 minutes undertaken to correct a process abnormality;

"kg/a" means kilograms per annum;

"M4" means the wastewater sampling point prior to wastewater entering the Water Corporation's Brine Return Line as shown in Attachment 3;

"MDEA" means methyldiethanolamine;

"mg/m³" means milligrams per cubic metre;

"m/s" means metres per second;

"µg/L" means microgram per litre;

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"NO_x concentration" means the total combined concentration of nitric oxide and nitrogen dioxide, expressed as nitrogen dioxide, dry, at 0 degrees Celsius and 1.0 atmosphere pressure (101.325 kilopascals);

"non-conformance" means failure to conform with licence conditions;

"Quarterly" means undertaking sampling every 3 months within this current licence period;

"Reporting Period" means the period 1 January to 31 December of the year before the Annual Report is due in accordance with condition G1(b); and

"TRH" means Total Recoverable Hydrocarbons.

Other terms take their meaning as defined in the *Environmental Protection Act 1986*

GENERAL CONDITIONS

ANNUAL REPORT

G1(a) The Licensee shall provide to the Director, an annual report which sets out in respect of each Reporting Period:

- (i) the groundwater monitoring results pursuant to conditions W1;
- (ii) the wastewater data averaged on a monthly basis pursuant to conditions M2 and M3;
- (iii) monitoring results for stormwater discharge pursuant to conditions M4;
- (iv) stack monitoring results pursuant to conditions A1 and A2;
- (v) a summary of incident reports of Emergency Flaring for the plant pursuant to conditions A3; and
- (vi) any non-conformances that occur in the Reporting Period.

G1(b) The Licensee shall provide an Annual Report to the Director by the **31 March 2007**.

DISCHARGES IN EXCESS OF LIMIT

G2(a) The Licensee shall provide a non-conformance report to the Director where any monitoring results are in excess of the limits specified in any condition of this Licence within seven usual business days of that non-conformance becoming known. The non-conformance report shall contain:

- (i) the amount by which the limit was exceeded, supported by relevant monitoring data;
- (ii) reasons for the emission levels being in excess of the limits; and
- (iii) an outline of corrective action taken by the Licensee to ensure that emission levels are maintained below the limits, where applicable.

G2(b) The Licensee shall provide a brief summary of any non-conformance with Licence conditions, occurring during the Reporting Period, in the Annual Report.

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DEPARTMENT OF ENVIRONMENT

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QUALITY ASSURANCE PROGRAM

G3(a) The Licensee shall provide to the Director by the **30 June 2006**, a procedure which describes in detail the sampling methodology, calibration, instrumentation and calculation procedures implemented to satisfy any monitoring requirement contained in the conditions of this Licence.

G3(b) The Licensee shall take, preserve, transport and have analysed (where appropriate) all water samples, required by any condition of this Licence, in accordance with Australian Standard 5667.1:1998 and also in accordance with supplementary standards recommended by Australian Standard 5667.1:1998 for taking samples in different situations.

GROUNDWATER PROTECTION CONDITIONS

GROUNDWATER MONITORING PROGRAM

W1(a) The Licensee shall undertake quarterly monitoring from each of the groundwater monitoring bores detailed in Table 2, Column 1 (as shown in Attachment 2), for all of the parameters specified in Table 2, Column 2.

W1(b) The Licensee shall report monitoring results specified in condition W1(a) in the Annual Report

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FILE NUMBER: L12/02

Table 2: Groundwater Monitoring Program

Column 1	Column 2
Monitoring Bore	Parameters to be measured
A	Standing Water Level (SWL)
BFB	Electrical conductivity @ 25° C
BFC	pH
BFD	Total Dissolved Solids (TDS)
BFE	Sulphate
BFF	Arsenic
	Cadmium
	Chromium
	Copper
	Mercury
	Nickel
	Lead
	Zinc
	Selenium
	TRH C6-C9,C15-C28,C29-C36
	MDEA
	Ammonia

MARINE POLLUTION CONTROL CONDITIONS

BRINE RETURN LINE DISCHARGES

M1(a) The Licensee shall ensure that wastewater from the following point sources is processed via the wastewater collection, treatment and disposal system and monitored in accordance with Condition M3(a) prior to discharge to the Brine Return Line:

- (i) all hydrocarbon collection sumps as identified in Attachment 3;
- (ii) all septic tank facilities as identified in Attachment 3;
- (iii) collected acidic and alkaline waste water directed to the neutralisation pit;
- (iv) neutralised demineralised reagent water;
- (v) reformer jacket water blowdown;
- (vi) process condensate; and
- (vii) reformer steamer drum boiler blowdown.

M1(b) The Licensee shall ensure that water from package boiler blowdown and cooling tower blowdown is discharged to the Brine Return Line through monitoring point M4.

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M1(c) The Licensee shall notify the Director of any intention to discharge wastewater into the Brine Return Line other than any of the wastewater identified in part (a) or (b) of this Condition.

MONITORING PROGRAM FOR DISCHARGE VIA THE BRINE RETURN LINE

M2(a) The Licensee shall continuously monitor the effluent stream from sampling point M4 for the parameters: flow rate and accumulated flow; temperature; conductivity; oxidation-reduction potential; and turbidity (measured in Nephelometric Turbidity Units).

M2(b) The Licensee shall ensure that the continuous data collected as per condition M2(a) during each Reporting Period is averaged on a monthly basis and reported in the Annual Report.

DISCHARGE CRITERIA MONITORING

M3(a) The Licensee shall undertake representative monitoring of wastewater discharged to the Brine Return Line for the parameters listed in Table 3, Column 1 at monitoring point M4.

M3(b) The Licensee shall provide a report detailing Burrup Fertilisers' ability to meet the required discharge criteria and annual loading limits listed in Table 3, Columns 2 and 3 respectively, including sampling and recording procedures, to the Director by **30 September 2006**.

M3(c) The Licensee shall ensure that the parameters detailed in Table 3, Column 1, discharged after the **30 June 2006** shall not exceed the limits specified in Table 3, Columns 2 and 3.

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Table 3: Brine Return Line discharge criteria

Column 1	Column 2	Column 3
Parameter	Discharge Criteria	Annual Loading Limit
Ammoniacal Nitrogen	<250µg/L	30 kg/a
Total Phosphorus	NA	250 kg/a
Total Nitrogen	NA	100 kg/a
Methanol	13µg/L	15 kg/a
Dissolved oxygen	Greater than 90% saturation	
pH	Within 0.2 of ambient (-8.2)	
Temperature	Within 2 degrees Celsius of the ambient and never to exceed 5°C above the 24-hour average ambient seawater temperature.	
Enterococci	95 percentile not greater than 200 enterococci/100ml based on 10 samples over a 6-month period.	
Thermotolerant coliforms	Median not greater than 14 CFU/100ml with no more than 10% of samples exceeding 21 CFU/100ml.	
Cadmium	0.7µg/L	
Chromium III	7.7 µg/L	
Copper	0.3 µg/L	
Iron	2.2µg/L	
Lead	2.2µg/L	
Mercury	0.1µg/L	
Nickel	7µg/L	
Zinc	7µg/L	

STORMWATER DISCHARGE

M4(a) The Licensee shall take representative samples of water within the sedimentation basins listed in Table 5, Column 1 and have the samples analysed for the parameters listed in Table 5, Column 2, prior to discharge offsite to the tidal flats

M4(b) The Licensee shall present results of the monitoring undertaken in accordance with condition M4(a) in the Annual Report

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Table 4: Sedimentation Basin Discharge Monitoring

Column 1	Column 2
Monitoring points (Attachment 3)	Parameters (mg/L except for pH)
Western sedimentation basin	total suspended solids (TSS), total petroleum hydrocarbons (TPH), and pH
Eastern sedimentation basin	

AIR POLLUTION CONTROL CONDITIONS

CONTINUOUS MONITORING REQUIREMENTS

A1(a) The Licensee shall ensure that waste gases emitted to the environment through the emission sources listed in Table 5, Column 1 are monitored on a continuous basis (utilising continuous gaseous emission analysers) for the parameters listed in Table 5, Column 2.

Table 5: Continuous emission criteria

Column 1	Column 2	Column 3
Emission source (Attachment 4)	Parameters to be measured	Emission criteria (mg/m ³)
Primary reformer	Sulphur dioxide (SO ₂)	N/A
	Oxides of nitrogen (measured as NO ₂)	205
	Carbon monoxide (CO)	42
	Particulates (measured as PM ₁₀)	4
Package boiler	Sulphur dioxide (SO ₂)	4
	Oxides of nitrogen (NO ₂)	210
	Carbon monoxide (CO)	42
	Particulates (measured as PM ₁₀)	5

A1(b) The Licensee shall ensure that reliable emissions monitoring data is obtained from continuous air emission monitoring devices (as required under part (a) of this condition) and recorded for:

- (i) greater than 90 percent of the manufacturing plant's stable operating time in every calendar month period; and
- (ii) greater than 95 percent of the manufacturing plant's stable operating time in any 12 consecutive calendar months

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DEPARTMENT OF ENVIRONMENT

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LICENCE NUMBER: 7997/2

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QUARTERLY STACK SAMPLING

A2(a) The Licensee shall take representative samples of waste gas from the emission sources listed in Table 6, Column 1 at the frequency stated in Table 6, Column 2 for the parameters depicted in Table 6, Column 3, for the purpose of verifying continuous monitoring results obtained under condition A1(a).

A2(b) The Licensee shall ensure that all existing air emission sampling points on the emission sources listed in Table 6, Column 1 are maintained in accordance with Australian Standard 4323 1:1995 (Stationary Source Emissions – Selection of Sampling Positions).

A2(c) The Licensee shall sample and analyse the waste gas from the emission sources listed in Table 6, Column 1 in accordance with the corresponding method listed in Table 6, Column 4.

Table 6: Stack Sampling Requirements

Column 1	Column 2	Column 3	Column 4
Emission Source	Frequency	Parameters to be measured	Method
Primary Reformer; and Package Boiler	June, September, December, March	Oxides of Nitrogen (NO _x)	USEPA Method 7
		Particulate Matter	USEPA Method 5
		Volatile Organic Compounds (VOC)	USEPA Method 18
		Oxides of Sulphur (SO _x)	USEPA Method 6

Notes:

1. Gas volumes shall be expressed at 0 degrees Celsius and 10 atmosphere pressure (101 325 kilopascals).
2. Nitrogen oxides calculated as NO₂, at a 7% oxygen reference level for process furnaces and at a 15% oxygen reference level for gas turbines

A2(d) The Licensee shall ensure that additional information as detailed under Table 7, Column 1 is measured and recorded using the corresponding methods listed in Table 7, Column 3 during stack testing in accordance with condition A2(a).

A2(e) The Licensee shall conduct quarterly stack sampling, only after at least a 10 day continuous operating period.

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DEPARTMENT OF ENVIRONMENT

Environmental Protection Act 1986

LICENCE NUMBER: 7997/2

FILE NUMBER: L12/02

Table 7: Additional Stack Testing Information

Column 1	Column 2	Column 3
Information required	Units required for reporting	Method
Moisture content	m/s	USEPA Method 4
Exit temperature	°C	NA
Total volumetric flow rate at exit temperature	m ³ /s at SIP	USEPA Method 2
Density at exit temperature	mg/m ³	NA
Production rate through the relevant item of equipment from which the discharge originates	% of maximum capacity	NA

AIR QUALITY REPORTING

A3(a) The Licensee shall report monitoring results as specified in conditions A1 and A2 in the Annual Report.

A3(b) The Licensee shall report to the Director when any Emergency Flaring or venting for upset conditions occurs. The report shall include but not be limited to the following:

- (i) information as to why the flaring/venting was undertaken;
- (ii) duration of flaring/venting period;
- (iii) type of gas/product flared/vented; and
- (iv) any emissions of dark smoke and duration of the Emergency Flaring or venting

A3(c) The Licensee shall provide a summary of all the Emergency Flaring and venting incidents in the Annual Report.

WESTERN AUSTRALIA

DEPARTMENT OF ENVIRONMENT

Environmental Protection Act 1986

LICENCE NUMBER: 7997/2

FILE NUMBER: L12/02

SEVERANCE

It is the intent of these Licence conditions that they shall operate so that, if a condition or a part of a condition is beyond my power to impose, or is otherwise *ultra vires* or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within my power to impose and are not otherwise *ultra vires* or invalid



Susan Worley
Officer delegated under section 20
Of the *Environmental Protection Act 1986*

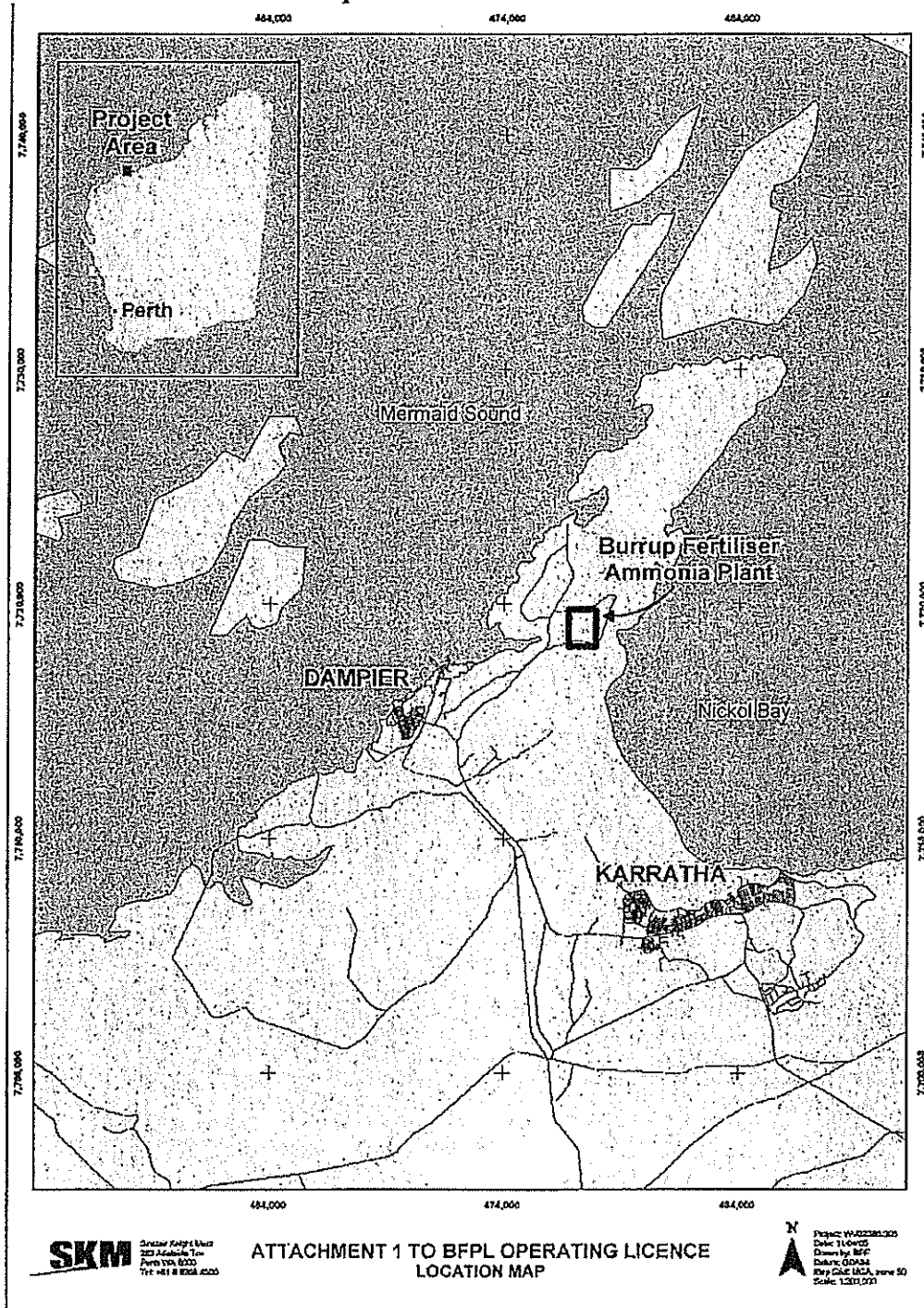
Date of Issue: Tuesday, 18 April 2006

WESTERN AUSTRALIA
DEPARTMENT OF ENVIRONMENT
Environmental Protection Act 1986

LICENCE NUMBER: 7997/2

FILE NUMBER: L12/02

Attachment 1 – Location Map



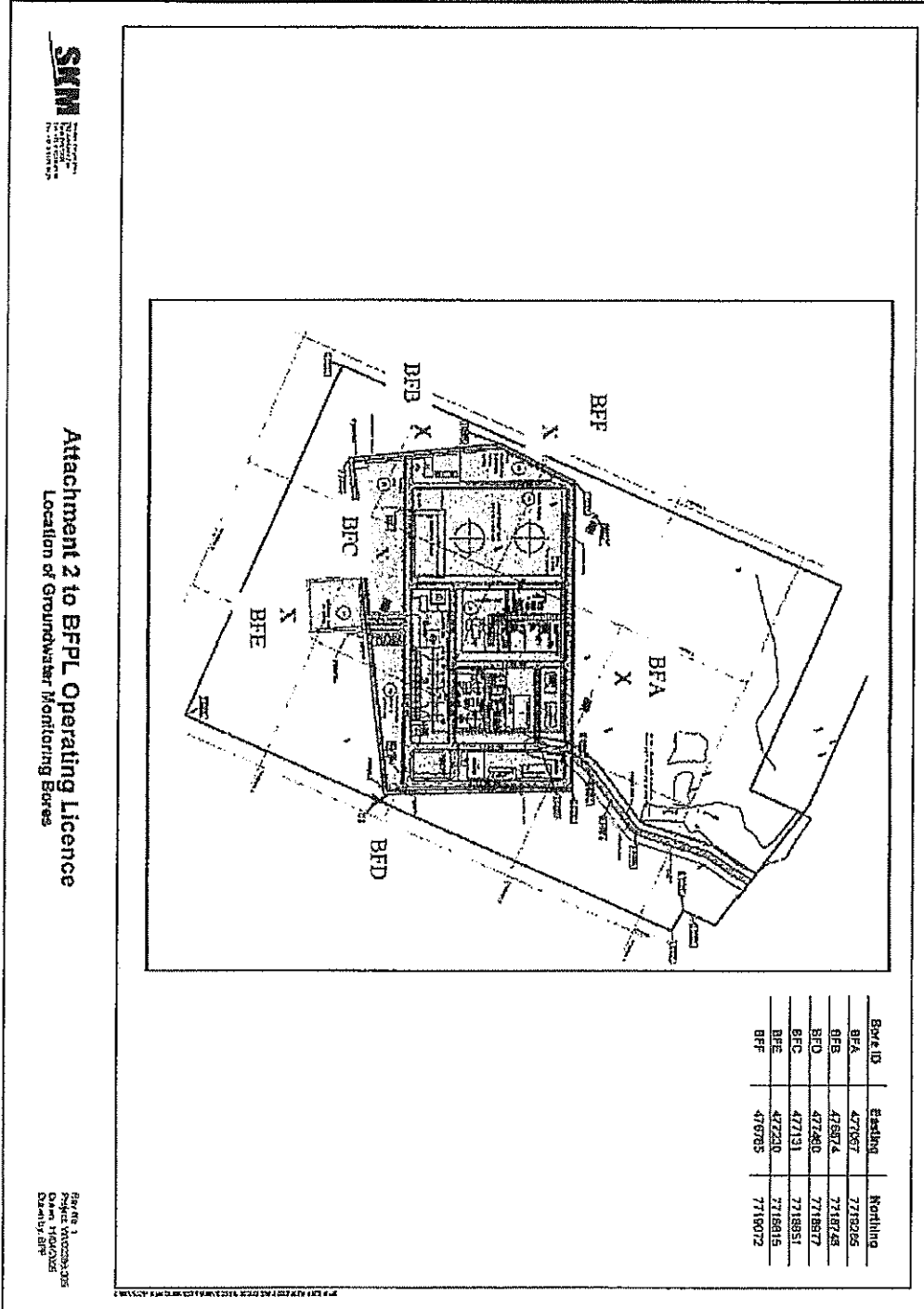
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DEPARTMENT OF ENVIRONMENT

Environmental Protection Act 1986

LICENCE NUMBER: 7997/2

FILE NUMBER: L12/02

Attachment 2 – Location of Groundwater Monitoring Bores



WESTERN AUSTRALIA
DEPARTMENT OF ENVIRONMENT

Environmental Protection Act 1986

LICENCE NUMBER: 7997/2

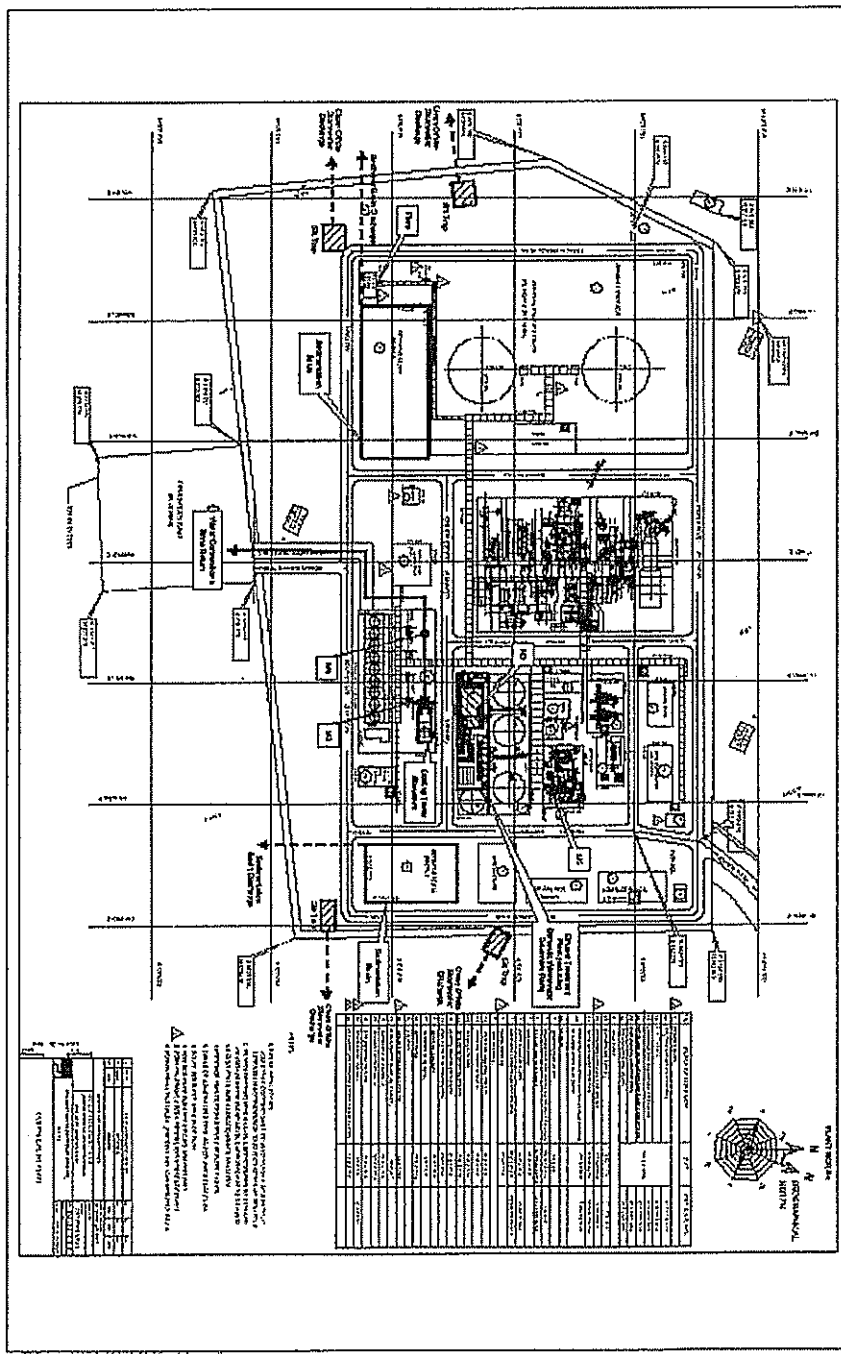
FILE NUMBER: L12/02

Attachment 3 – Location of Water Quality Monitoring and Discharge Points (including hydrocarbon collection sumps and septic tank facilities).

SKM
SPECIALIST
CONSULTANTS
AND ENGINEERS

Attachment 3 to BFPPL Operating Licence
Location of Water Quality Monitoring and Discharge Points
(including hydrocarbon collection sumps and septic tank facilities).

Legend:
☒ Discharge
☒ BFPPL Asset
☒ Other relevant data bearing on the
assessment of the BFPPL
☒ Other relevant data
bearing on the BFPPL
Date: 11/04/2006
Drawn: 11/04/2006
Checked: 11/04/2006



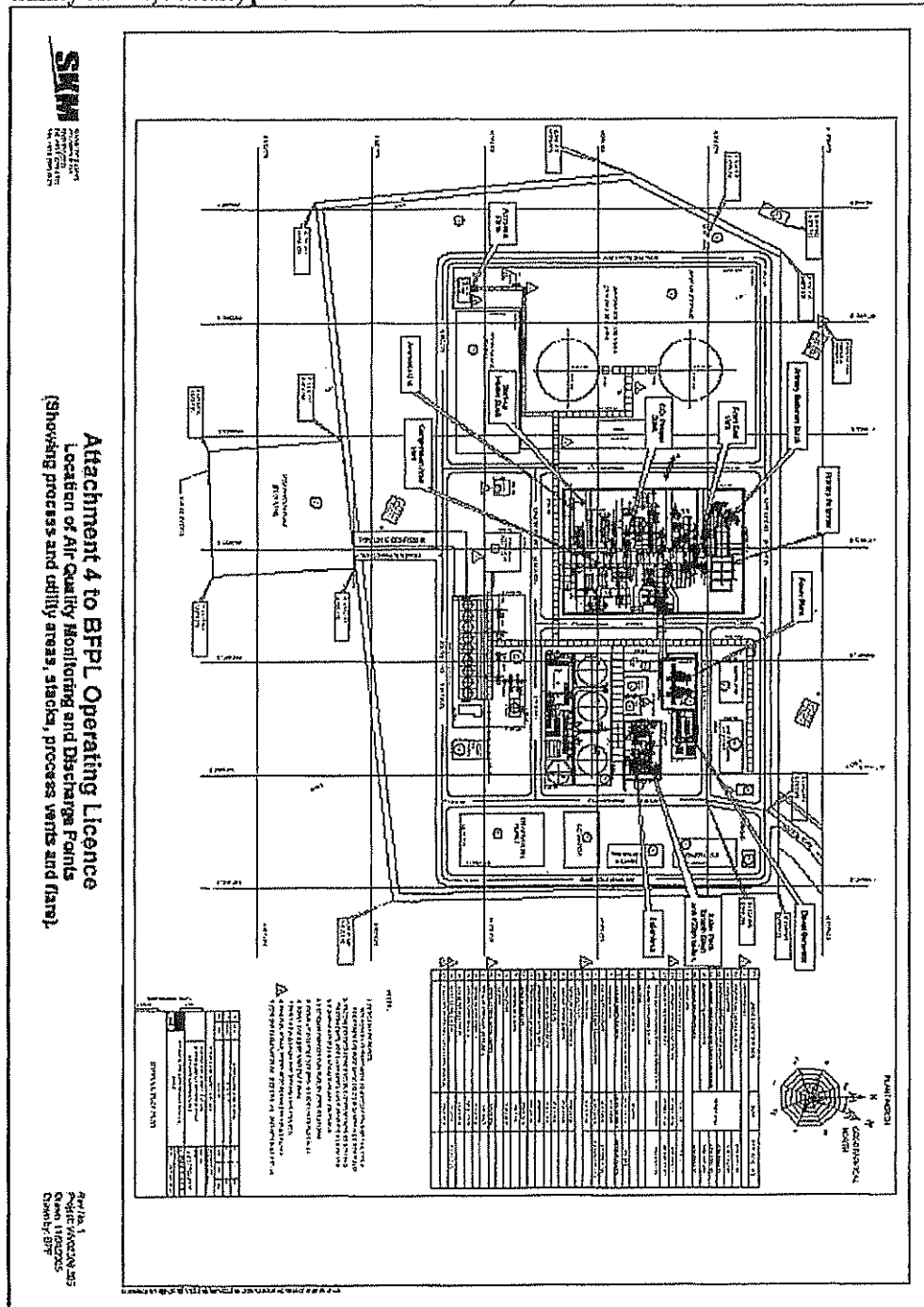
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DEPARTMENT OF ENVIRONMENT

Environmental Protection Act 1986

LICENCE NUMBER: 7997/2

FILE NUMBER: L12/02

Attachment 4 – Location of Process Areas and Discharge Points (showing process and utility areas, stacks, process vent and flare).





Department of
Environment

Your ref:

Our ref:

L12/02

Enquiries:

Renee Hodges

Direct tel:

9144 0221

The Manager
Burrup Fertilisers Pty Ltd
Level 8, St Georges Square, 225 St Georges Terrace
Perth WA 6000

Dear Sir/Madam

ENVIRONMENTAL PROTECTION ACT 1986 - LICENCE

**Burrup Ammonia Plant (Burrup Fertilisers), De Witt Location 564, Vol 3125, Folio 243
King Bay-Hearson Cove Industrial Area
Burrup Peninsula WA**

You are advised that your application for a licence to operate the works prescribed under the *Environmental Protection Act 1986* at the above-mentioned location has been approved subject to the attached conditions. Enclosed is your licence together with receipt number, 015039 for the prescribed fee.

If any aspect of the conditions of licence aggrieves you, you may lodge an appeal, accompanied by the \$50.00 fee, with the Minister for the Environment within 21 days from the date on which this licence is received. Members of the public may also appeal conditions. Please contact the Appeals Registrar at the Appeal Convenor's Office on 9221 8711 after the closing date of appeals to check whether any appeals were received.

Under Section 58 of the *Environmental Protection Act 1986*, it is an offence to contravene a licence condition. This offence carries a penalty of up to \$125,000, with a daily penalty of up to \$25,000. The Department considers that a breach of this section, or any other section, of the *Environmental Protection Act 1986* to be extremely serious.

If you have any questions relating to the licence or licence conditions, please do not hesitate to contact Renee Hodges of the North West Region on 9144 2000.

Yours faithfully

SUSAN WORLEY
MANAGER, NORTH WEST REGION
REGIONAL OPERATIONS DIVISION

Friday, 15 April 2005

encs



WESTERN AUSTRALIAN
environment
AWARDS

to: Local Government Authority: Shire of Roebourne

North West Region
Lot 4608 Cherratta Road KIE
Karratha Western Australia 6714
PO Box 836 Karratha Western Australia 6714
Telephone (08) 9144 2000 Facsimile (08) 9144 2610
www.environment.wa.gov.au

WESTERN AUSTRALIA
DEPARTMENT OF ENVIRONMENT

Environmental Protection Act 1986

LICENCE

LICENCE NUMBER: 7997/1

FILE NUMBER: L12/02

NAME OF OCCUPIER:

Burrup Fertilisers Pty Ltd

ADDRESS OF OCCUPIER:

Level 8, St Georges Square, 225 St Georges Terrace
Perth WA 6000

NAME AND LOCATION OF PREMISES:

Burrup Ammonia Plant (Burrup Fertilisers)
De Witt Location 564, Vol 3125, Folio 243 King Bay-Hearson Cove Industrial Area
Burrup Peninsula WA

Environmental Protection Regulations 1987

CLASSIFICATION(S) OF PREMISES:

Category 31 - Chemical manufacturing
Category 52 - Electric power generation

COMMENCEMENT DATE OF LICENCE: Tuesday, 26 April 2005

EXPIRY DATE OF LICENCE: Thursday, 20 April 2006

CONDITIONS OF LICENCE:

As described and attached:

DEFINITIONS (23)

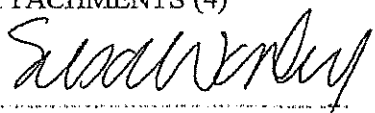
GENERAL CONDITION(S) (3)

WATER POLLUTION CONTROL CONDITION(S) (1)

MARINE POLLUTION CONTROL CONDITION(S) (5)

AIR POLLUTION CONTROL CONDITION(S) (4)

ATTACHMENTS (4)


Officer delegated under Section 20
of the *Environmental Protection Act 1986*

Date of Issue: Monday, 25 April 2005

WESTERN AUSTRALIA

DEPARTMENT OF ENVIRONMENT

Environmental Protection Act 1986

LICENCE NUMBER: 7997/1

FILE NUMBER: L12/02

PREAMBLE

The following statements in this provides relevant background information for the Licensee. They should not be regarded as conditions of licence.

Applicability

This Licence is issued to Burrup Fertilisers Pty Ltd, De Witt Location 546, Vol 3125, Folio 234 King Bay-Hearson Cove Industrial Area, Burrup Peninsula (Attachment 1), which is a prescribed premises within Schedule 1 of the *Environmental Protection Regulations 1987*, and includes the following operations:

- use of the existing Dampier Cargo Wharf for an initial shipment of ammonia;
- use of the Bulk Liquids Jetty for export and import of liquid ammonia;
- wastewater collection, treatment and disposal system;
- ammonia plant designed to produce 2,200 tonnes ammonia per day;
- primary and secondary reformers (ammonia production unit);
- captive power plant comprising two 22MW units;
- two package boilers (of 150 tonnes per hour and 50 tonne per hour capacity) supplying medium pressure steam for plant start-up;
- air drying unit and two air compressors;
- catalyst loading and unloading facilities;
- two 40,000 tonne atmospheric pressure, cryogenic ammonia storage tanks, complete with a single flare stack;
- closed circuit seawater-freshwater cooling system;
- two seawater cooling towers;
- demineralisation water plant;
- sulphuric acid and caustic unloading, storage and distribution facilities;
- inert gas generation unit of gaseous nitrogen and on-site storage of liquid nitrogen;
- chlorine dosing facility; and
- one 5 MW emergency diesel generator.

This facility is prescribed within Schedule 1 of the *Environmental Protection Regulations 1987* as outlined below:

Categories under which Burrup Fertilisers is prescribed.

<i>Category Number</i>	<i>Category Name</i>	<i>Description</i>
31	Chemical Manufacturing	Other than Cat 32, on which chemical products are manufactured by a chemical process.
52	Electric Power Generation	Other than 53, on which electrical power is generated using a fuel

Ministerial Conditions

This premises is also subject to Ministerial Statement 586 set by the Minister for the Environment under Part IV of the *Environmental Protection Act 1986* on 20 February 2002. The Licensee is required to comply with the requirements of the Minister's conditions as well as those in this Licence.

WESTERN AUSTRALIA
DEPARTMENT OF ENVIRONMENT

Environmental Protection Act 1986

LICENCE NUMBER: 7997/1

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Non-Standard Operations

The Licensee should inform the Director, at least 24 hours prior to the commencement of any planned non-standard operation that may have the potential to cause pollution.

Emergency, Accident or Malfunction

The licensee should inform the Director during office hours or the Department of Environment out-of-hours number as soon as is practicably possible of the identification of any discharge of waste which has occurred as a result of an emergency, accident or malfunction, or extreme weather conditions, otherwise than in accordance with any condition of this Licence and has caused or is likely to cause pollution.

Alteration to Premises

Prior to making any significant alterations to the premises which may affect the air, water or noise emissions from the premises the Licensee must submit a proposal to the Director accompanied by supporting information and plans which allow the environmental impact of that change to be assessed

General requirements

The licensee should be aware that these conditions do not exempt the Premises/Licensee from other statutory obligations under the *Environmental Protection Act 1986*, or any other Acts or regulations. This includes: *Environmental Protection Regulations 1997*

- *Environmental Protection (Noise) Regulations 1997.*
- *Environmental Protection (Unauthorised Discharge) Regulations 2004.*
- *Environmental Protection (Clearing of Native Vegetation) Regulations 2004.*
- *Environmental Protection (Controlled Waste) Regulations 2004.*

CONDITIONS OF LICENCE

DEFINITIONS

In these Conditions of Licence, unless inconsistent with the text or subject matter:

“Annually” means a 12 calendar month period, commencing on the Licence issue date;

“Annual Report” means the report produced annually by the Licensee in accordance with Conditions G1(a) and G1(b);

“Approved” means approval in writing;

“Burrup Fertilisers” means Burrup Fertilisers Pty Ltd;

“Brine Return Line” means the desalination plant brine return pipeline operated by the Water Corporation;

“CFU” means Colony Forming Unit;

WESTERN AUSTRALIA
DEPARTMENT OF ENVIRONMENT

Environmental Protection Act 1986

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"Director" means Director, Environmental Management Division, or other delegated officer, of the Department of Environment for and on behalf of the Chief Executive Officer as delegated under Section 20 of the *Environmental Protection Act 1986*;

"Director" for the purpose of notifications and correspondence means:

Manager, North West Region
Department of Environment
PO Box 836
KARRATHA WA 6714

Telephone: (08) 9144 2000
Facsimile: (08) 9278 0786;

"Emergency Flaring" means flaring for in excess of 5 minutes undertaken to correct a process abnormality;

"g/m³" means grams per cubic metre, expressed at 0 degrees Celsius and 1.0 atmosphere pressure (101.325 kilopascals);

"g/s" means grams per second;

"kg/a" means kilograms per annum;

"kg/day" means kilograms per day;

"M4" means the wastewater sampling point prior to wastewater entering the Water Corporation's Brine Return Line;

"MDEA" means methyldiethanolamine;

"mg/m³" means milligrams per cubic metre;

"m/s" means metres per second;

"µg/L" means microgram per litre;

"NO_x concentration" means the total combined concentration of nitric oxide and nitrogen dioxide, expressed as nitrogen dioxide, dry, at 0 degrees Celsius and 1.0 atmosphere pressure (101.325 kilopascals);

"non-conformance" means failure to conform with licence conditions;

"Quarterly" means undertaking sampling every 3 months within this current licence period;

"Reporting Period" means the period 1 April to 31 March immediately before the Annual Report is due in each year in accordance with condition G1(b); and

"TRH" means Total Recoverable Hydrocarbons.

Other terms take their meaning as defined in the *Environmental Protection Act 1986*

WESTERN AUSTRALIA
DEPARTMENT OF ENVIRONMENT

Environmental Protection Act 1986

LICENCE NUMBER: 7997/1

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GENERAL CONDITIONS

ANNUAL REPORT

- G1(a) The Licensee shall provide to the Director, an annual report which sets out in respect of each Reporting Period:
- (i) the groundwater monitoring results pursuant to condition W1(a);
 - (ii) the wastewater data averaged on a monthly basis pursuant to conditions M2(b) and M3(a);
 - (iii) monitoring results for stormwater discharge pursuant to condition M5(b);
 - (iv) stack monitoring results pursuant to condition A4(a) and A4(b);
 - (v) a summary of incident reports of emergency flaring for the plant pursuant to condition A4(c); and
 - (vi) Any non-conformances that occur in the Reporting Period pursuant to Condition G2(b).
- G1(b) The Licensee shall provide an Annual Report to the Director by the 31 March 2006

DISCHARGES IN EXCESS OF LIMIT

- G2(a) The Licensee shall provide a non-conformance report to the Director where any monitoring results are in excess of the limits specified in any condition of this Licence within seven usual business days of that non-conformance becoming known. The non-conformance report shall contain:
- (i) the amount by which the limit was exceeded, supported by relevant monitoring data;
 - (ii) reasons for the emission levels being in excess of the limits; and
 - (iii) an outline of corrective action taken by the Licensee to ensure that emission levels are maintained below the limits, where applicable.
- G2(b) The Licensee shall provide a brief summary of any non-conformance with Licence conditions, occurring during the Reporting Period, in the Annual Report.

QUALITY ASSURANCE PROGRAM

- G3(a) The Licensee shall provide to the Director by the 30 November 2005, a procedure which describes in detail the sampling methodology, calibration, instrumentation and calculation procedures implemented to satisfy any monitoring requirement contained in the conditions of this Licence.

GROUNDWATER PROTECTION CONDITIONS

GROUNDWATER MONITORING PROGRAM

- W1(a) The Licensee shall undertake quarterly monitoring from each of the groundwater monitoring bores detailed in Table 1, column 1 (as shown in Attachment 2), for all of the parameters specified in Table 1, column 2. The Licensee shall include a summary of the groundwater monitoring results collected during each Reporting Period in the Annual Report.

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TABLE 1: GROUNDWATER MONITORING PROGRAM

Monitoring Bore	Parameters to be measured
BFA	Standing Water Level (SWL)
BFB	Electrical conductivity @ 25° C
BFC	pH
BFD	Total Dissolved Solids (TDS)
BFE	Sulphate
BFF	Arsenic
	Cadmium
	Chromium
	Copper
	Mercury
	Nickel
	Lead
	Zinc
	Selenium
	TRH C6-C9,C15-C28,C29-C36
	MDEA
	Ammonia

- W1(b) The Licensee shall take, preserve, transport and have analysed (where appropriate) all water samples, required by conditions of this Licence, in accordance with Australian Standard 5667.1:1998 and also in accordance with supplementary standards recommended by Australian Standard 5667.1:1998 for taking samples in different situations.

MARINE POLLUTION CONTROL CONDITIONS

BRINE RETURN LINE DISCHARGES

- M1(a) The Licensee shall ensure that wastewater from the following point sources is processed via the wastewater collection, treatment and disposal system and monitored in accordance with Condition M3(a) prior to discharge to the Brine Return Line :
- (i) all hydrocarbon collection sumps as identified in Attachment 3;
 - (ii) all septic tank facilities as identified in Attachment 3;
 - (iii) collected acidic and alkaline waste water directed to the neutralisation pit;
 - (iv) neutralised demineralised reagent water;
 - (v) reformer jacket water blowdown;
 - (vi) process condensate; and
 - (vii) reformer steamer drum boiler blowdown.
- M1(b) The Licensee shall ensure that water from package boiler blowdown and cooling tower blowdown is discharged to the Brine Return Line through monitoring point M4.

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- M1(c) The Licensee shall notify the Director of any intention to discharge wastewater into the Brine Return Line other than any of the wastewater identified in part (a) or (b) of this Condition.

MONITORING PROGRAM FOR DISCHARGE VIA THE BRINE RETURN LINE

- M2(a) The Licensee shall continuously monitor the effluent stream from sampling point M4 (Attachment 3). The parameters monitored are to include: flow rate and accumulated flow; temperature; conductivity; oxidation-reduction potential; and total suspended solids.
- M2(b) The Licensee shall ensure that the continuous data collected as per condition M2(a) during each Reporting Period is averaged on a monthly basis and reported in the Annual Report.

DISCHARGE CRITERIA MONITORING

- M3(a) The Licensee shall undertake representative monitoring of the parameters set out in Table 3 (Brine Return Line Discharge Criteria) column 1, at monitoring point M4 (as shown in Attachment 3).
- M3(b) The Licensee shall provide a report detailing Burrup Fertilisers' ability to meet the required discharge criteria (Table 3, column 2) and annual loading limits (Table 3, column 3), including sampling and recording procedures to the Director by 31 January 2006.
- M3(c) The Licensee shall ensure that the parameters detailed in Table 3³ column 1, discharged after the 31 January 2006 shall not exceed the limits specified in Table 3, columns 2 and 3.

TABLE 3: BRINE RETURN LINE DISCHARGE CRITERIA

Parameter	Licence discharge criteria	Annual loading limit
Ammoniacal Nitrogen	<250µg/L	30kg/a
Total Phosphorus	Not Applicable	150kg/a
Total Nitrogen	Not Applicable	100kg/a
Methanol	13µg/L	15kg/a
Dissolved oxygen	Greater than 90% saturation	
pH	Within 0.2 of ambient pH (~8.2)	
Temperature	Within 2 degrees celcius of the ambient and never to exceed 5°C above the 24 hour average ambient sea water temperature	
Enterococci	95 percentile not greater than 200 enterococci/100ml based on 10 samples over a 6 month period	
Thermotolerant coliforms	Median not greater than 14 CFU/100ml with no more than 10% of samples exceeding 21 CFU/100ml	

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Cadmium	0.7µg/L	
Chromium	7.7 µg/L	
Copper	0.3 µg/L	
Iron	2.2µg/L	
Lead	2.2µg/L	
Mercury	0.1µg/L	
Nickel	7µg/L	
Zinc	7µg/L	

MONITORING PROGRAM FOR EMERGENCY MARINE DISCHARGES

- M4 The Licensee shall conduct the following monitoring program in the event of an unplanned or emergency upset condition likely to have caused or to cause the quality of wastewater to be discharged via the Brine Return Line to exceed the criteria set out in Table 3 (column 2) and report as per condition G2(a):

- (i) take representative samples of the discharge;
- (ii) analyse for the parameters specified in Table 3; and
- (iii) maintain records of the duration of the wastewater emergency discharge via the Brine Return Line.

STORMWATER DISCHARGE

- M5(a) The Licensee shall monitor the sedimentation basin stormwater at the monitoring locations specified in Table 4 (Stormwater Discharge Monitoring), column 1, prior to discharge to the tidal flats, for the parameters listed in Table 4, column 2.

TABLE 4: STORMWATER DISCHARGE MONITORING

Monitoring point	Parameter
Western sedimentation basin	total suspended solids, total petroleum hydrocarbons and pH
Eastern sedimentation basin	

- M5(b) The Licensee shall present results of the monitoring undertaken in accordance with Condition M5(a) in the Annual Report

AIR POLLUTION CONTROL CONDITIONS

EMISSIONS MONITORING REQUIREMENTS

- A1(a) The Licensee shall ensure that waste gases emitted to the environment through the following emission points (see Attachment 4) are monitored:

- (i) primary reformer;
- (ii) package boiler;
- (iii) start up heater;
- (iv) carbon dioxide stripper;
- (v) vents A and B; and
- (vi) flare stack.

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- A1(b) The Licensee shall report the following parameters when determining, for the purpose of any condition of this Licence, the quantity and/or nature of waste gases discharged:
- (i) density at exit temperature;
 - (ii) moisture content;
 - (iii) total volume flow rate at exit temperature;
 - (iv) exit temperature; and
 - (v) production rate through the relevant item of equipment from which the discharge originates, percent of maximum capacity and other notable operational circumstances likely to affect discharges from the associated item.
- A1(c) The Licensee shall utilise empirical methodologies, as specified in the Quality Assurance Program, required by condition G3(a), where direct sampling of any air emissions from the emission points referred to in part (a) of this condition are impractical
- A1(d) Where continuous gaseous emission analysers are required by conditions of this Licence, the Licensee shall ensure that reliable emissions monitoring data is obtained and recorded for:
- (i) greater than 90 percent of the manufacturing plant's stable operating time in every calendar month period; and
 - (ii) greater than 95 percent of the manufacturing plant's stable operating time in any 12 consecutive calendar months.
- A1(e) The Licensee shall conduct periodic stack testing as required by conditions of this Licence, which shall only be carried out after at least a 10 day continuous operating period
- A1(f) The Licensee shall notify the Director when circumstances occur where a gaseous emission test cannot be conducted, and as such an alternative time for testing shall be agreed between the Licensee and the Director.

AIR QUALITY DISCHARGE CRITERIA

- A2(a) The Licensee shall ensure that emissions during normal operating conditions from the discharge points set out in Table 5, column 1 do not exceed the air emissions limits detailed in Table 5, columns 2, 3, 4 and 5:

TABLE 5: DISCHARGE CRITERIA UNDER NORMAL OPERATIONS

Discharge point	NO _x as NO ₂	SO ₂	CO	Particulates
	mg/m ³	mg/m ³	mg/m ³	mg/m ³
Primary reformer	205	N/A	42	4
Package Boiler	210	4	42	5

- A2(b) The Licensee shall ensure that emissions during start up/upset conditions from the discharge points set out in Table 6, column 1, do not exceed the air emission limits detailed in Table 6, columns 2, 3 and 4:

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TABLE 6: DISCHARGE CRITERIA UNDER STARTUP/UPSET CONDITIONS

Discharge point	NO _x as NO ₂	SO ₂	Particulates
	mg/m ³	mg/m ³	mg/m ³
Package boiler	210	4	5
Startup heater	210	4	5

- Notes:
1. Gas volumes shall be expressed at 0 degrees Celsius and 10 atmosphere pressure (101.325 kilopascals).
 2. Nitrogen oxides calculated as NO₂, at a 7% oxygen reference level for process furnaces and at a 15% oxygen reference level for gas turbines

WASTE GAS STACK MONITORING REQUIREMENTS

- A3(a) The Licensee shall analyse using the relevant USEPA standard, grab samples from the stack sampling ports detailed in Table 7, column 1, for the purpose of measuring gaseous emission concentrations for the parameters listed in Table 7, column 2.
- A3(b) The Licensee shall, for the purposes of Condition A3(a) and as far as reasonably practicable, schedule monitoring such that the number of sampling points monitored per quarterly period is maximised.

TABLE 7: WASTE GAS STACK MONITORING PARAMETERS

Emission source	Parameters	Frequency
<ul style="list-style-type: none"> • Primary Reformer; and • Package boiler 	Oxides of nitrogen (NO _x) ²	Quarterly:
	Particulates	
	Volatile organic compounds	
	Oxides of sulphur (SO _x)	

- Notes:
1. Gas volumes shall be expressed at 0 degrees Celsius and 10 atmosphere pressure (101.325 kilopascals).
 2. Nitrogen oxides calculated as NO₂, at a 7% oxygen reference level for process furnaces and at a 15% oxygen reference level for gas turbines.

AIR QUALITY REPORTING

- A4(a) The Licensee shall report monitoring results as specified in condition A1 for each Reporting Period to the Director in the Annual Report as per condition G1(a).
- A4(b) The Licensee shall report monitoring results specified in condition A3 to the Director quarterly and summarise the results in the Annual Report as per condition G1(a).
- A4(c) The Licensee shall report to the Director when any Emergency Flaring or venting for upset conditions occurs. The report shall include but not be limited to the following:
- (i) information as to why the flaring/venting was undertaken;
 - (ii) duration of flaring/venting period;

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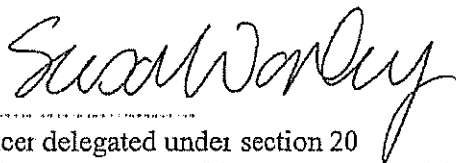
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- (iii) type of gas/product flared/vented; and
- (iv) any emissions of dark smoke and duration of the emergency flaring or venting.

A4(d) The Licensee shall provide a summary all the emergency flaring and venting incidents in the Annual Report as per condition G1(a).

SEVERANCE

It is the intent of these Licence conditions that they shall operate so that, if a condition or a part of a condition is beyond my power to impose, or is otherwise *ultra vires* or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within my power to impose and are not otherwise *ultra vires* or invalid.



Officer delegated under section 20
Of the *Environmental Protection Act 1986*

Susan Worley
MANAGER
NORTH WEST REGION

Date of Issue: 25 April 2005

ATTACHMENTS

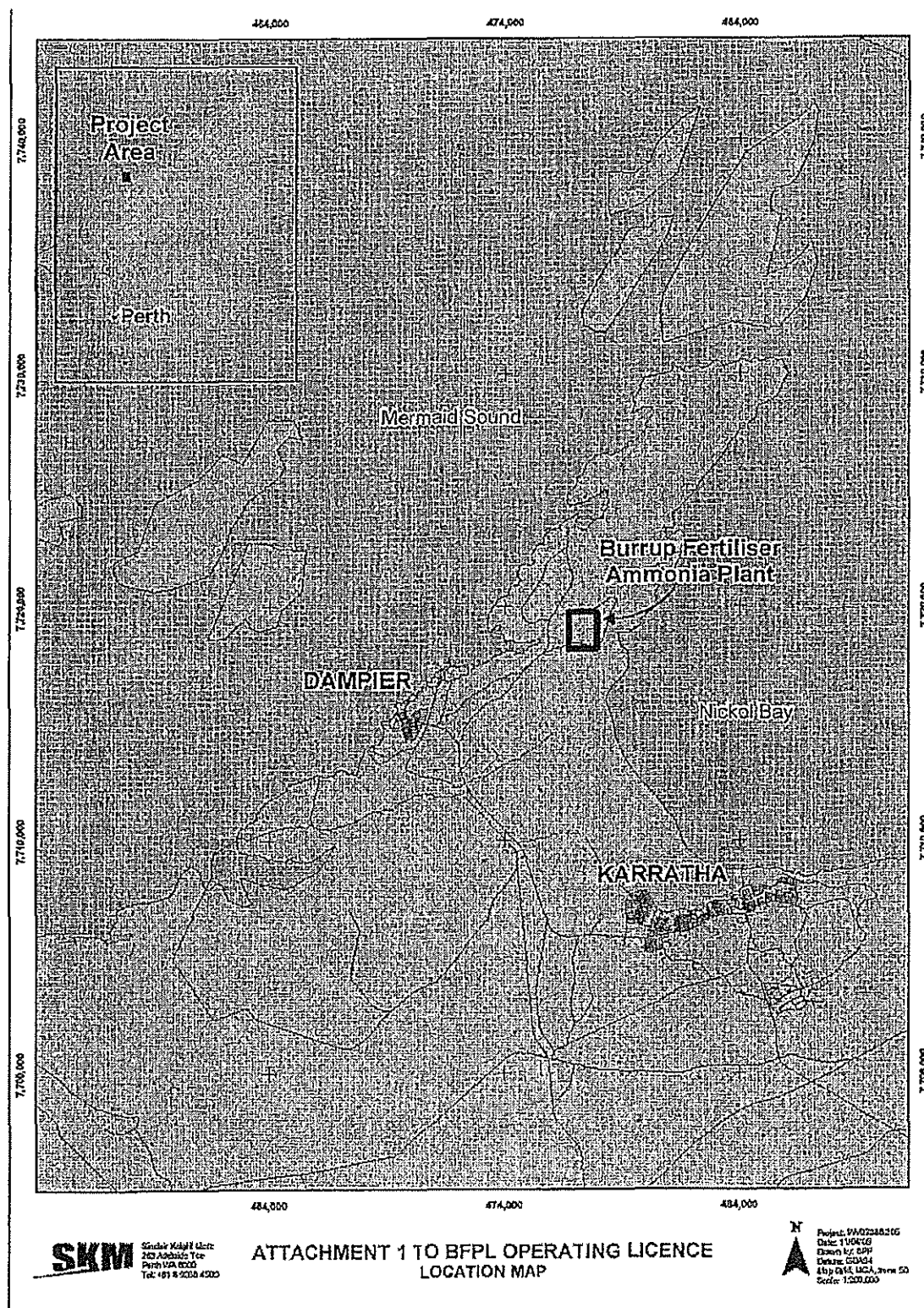
Attachment 1 – Location Map
Attachment 2 – Location of Groundwater Monitoring Bores
Attachment 3 – Location of Water Quality Monitoring and Discharge Points (including hydrocarbon collection sumps and septic tank facilities).
Attachment 4 – Location of Process Areas and Discharge Points (showing process and utility areas, stacks, process vent and flare).

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DEPARTMENT OF ENVIRONMENT

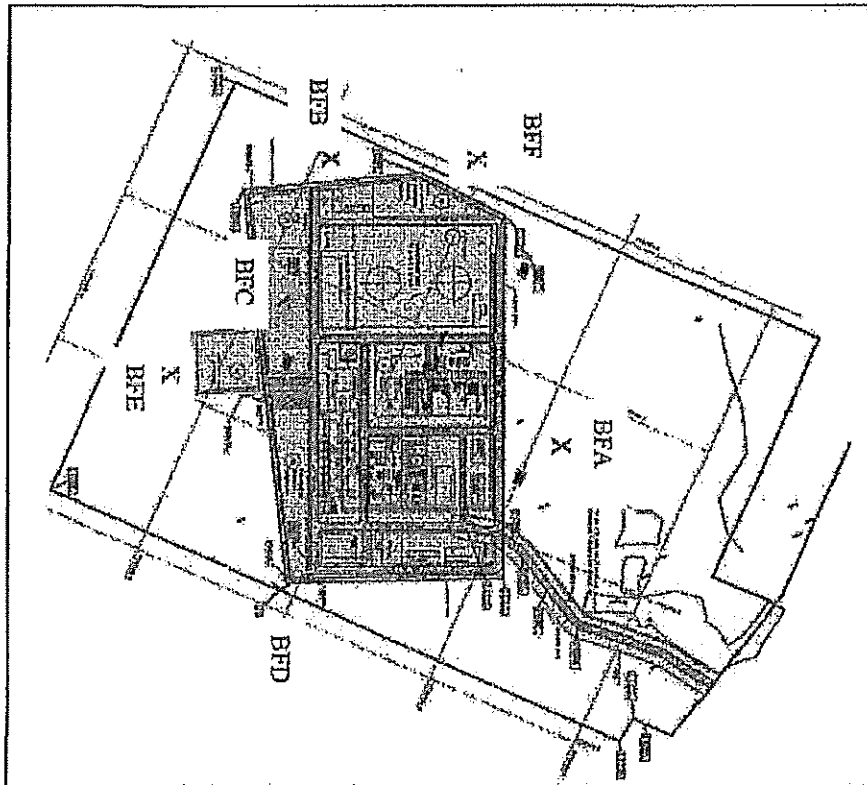
Environmental Protection Act 1986

LICENCE NUMBER: 7997/1

FILE NUMBER: L12/02

SKM
Soil & Water
Monitoring
Systems
Pty Ltd

Attachment 2 to BfPL Operating Licence
Location of Groundwater Monitoring Bore



Bore ID	Easting	Northing
BFA	471637	7719285
BFB	4718374	77193748
BFC	471490	7718877
BFD	471131	7718851
BFE	471230	7718815
BFF	471705	7719072

Rev 1.0
Project: WACOMAS
Drawing: 11040065
Drawn by: BPP

WESTERN AUSTRALIA
DEPARTMENT OF ENVIRONMENT

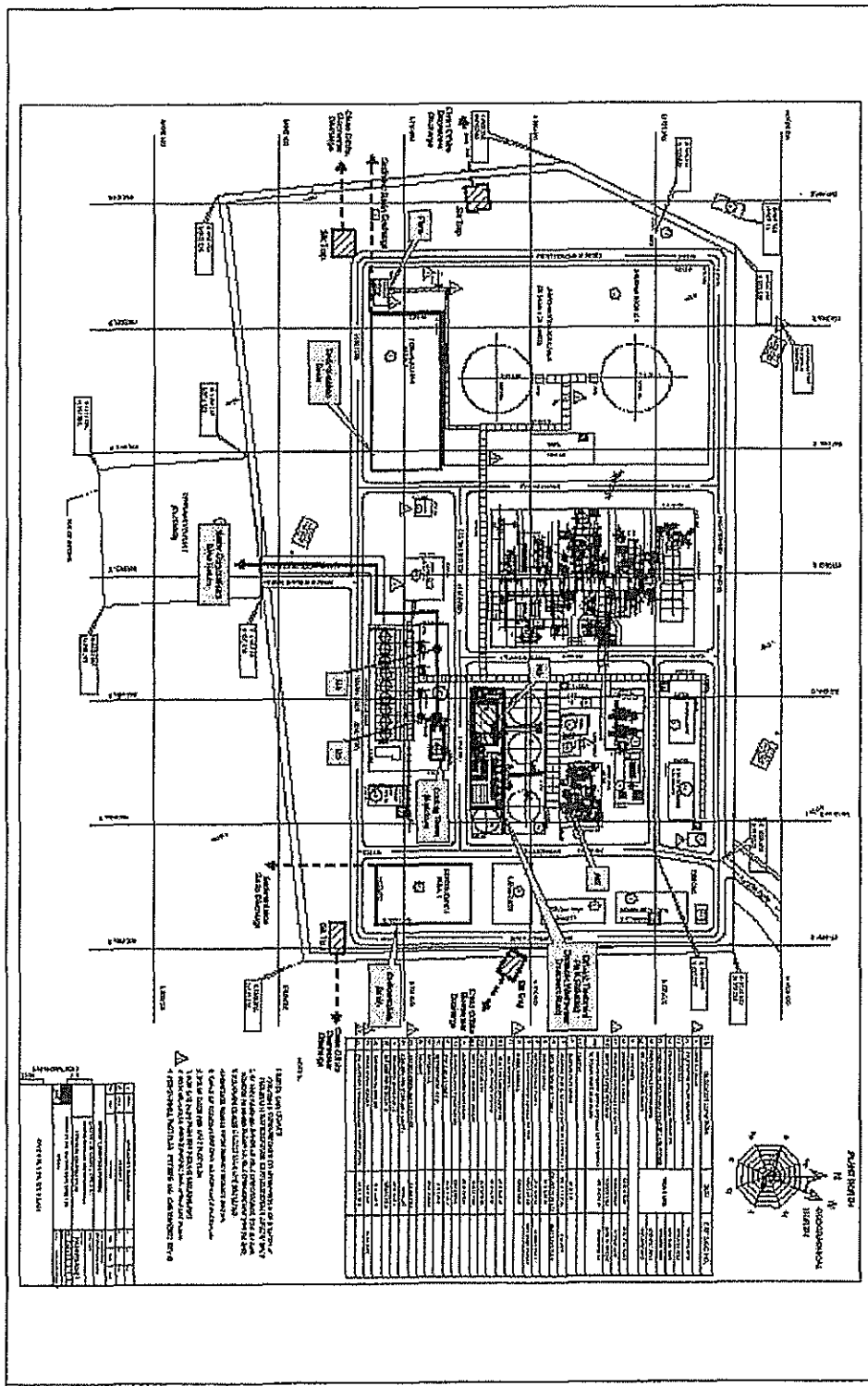
Environmental Protection Act 1986

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Attachment 3 to BFPPL Operating Licence
Location of Water Quality Monitoring and Discharge Points
(including hydrocarbon collection sumps and septic tank facilities)



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DEPARTMENT OF ENVIRONMENT

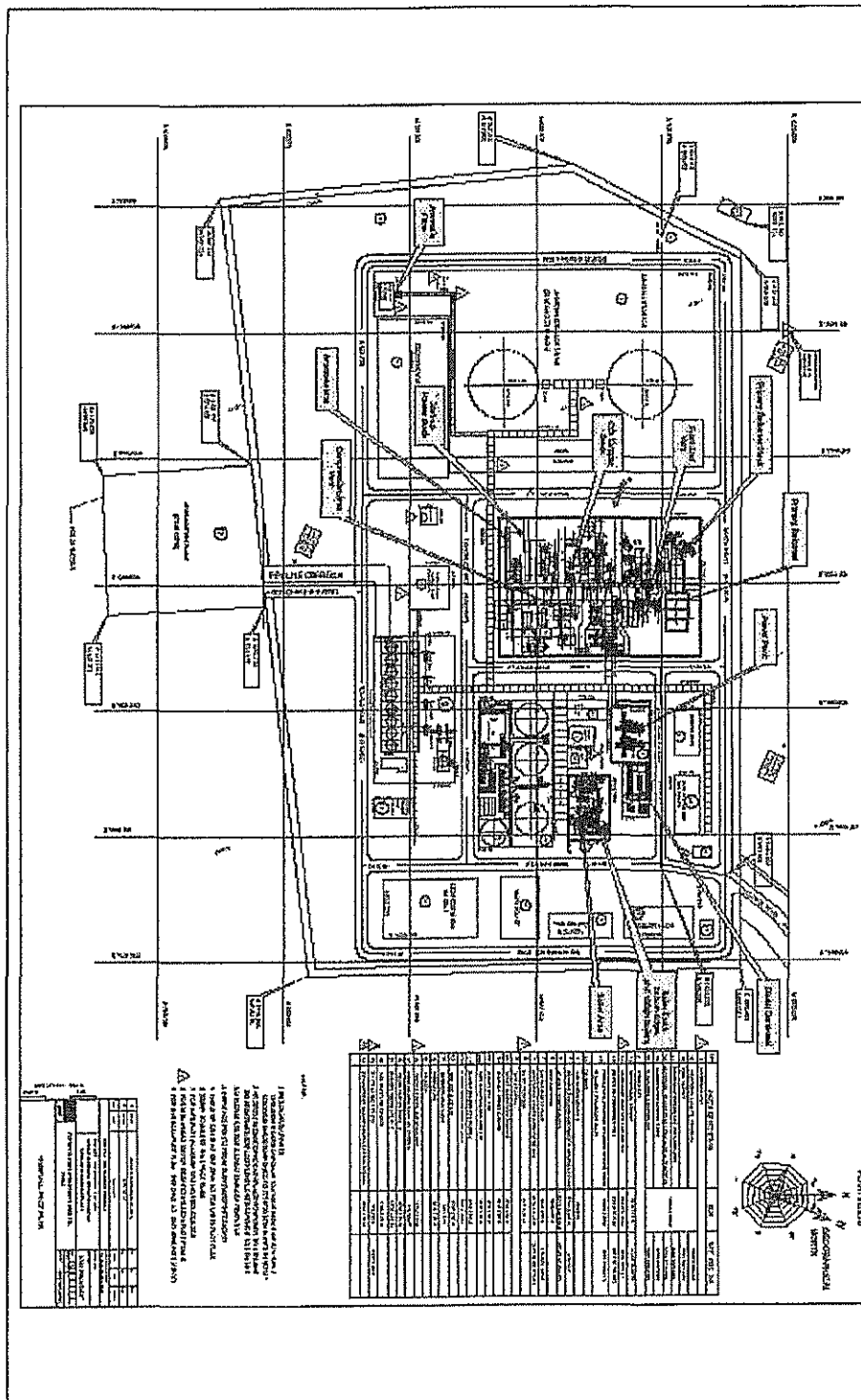
Environmental Protection Act 1986

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SKM
SPECIALIST
KINDNESS
MANAGEMENT

Attachment 4 to BFPL Operating Licence
Location of Air Quality Monitoring and Discharge Points
(Showing process and utility areas, stacks, process vents and flares)



Rev No. 1
Issue No. 1
Date: 25 April 2005
Drawn by: BPP



Department of
Environment and Conservation

Your ref: 7997
Our ref: L12/02
Enquiries: Cameron Sudintas
Phone: 91822035
Fax: 91441118
Email: Cameron.sudintas@dec.wa.gov.au

The Manager
Burrup Fertilisers Pty Ltd
Level 8, St Georges Square, 225 St Georges Terrace
PERTH WA 6000

Dear Sir/Madam

ENVIRONMENTAL PROTECTION ACT 1986 - LICENCE

Burrup Ammonia Plant

De Witt Location 564, Vol 3125, Folio 243 King Bay - Hearson Cove Industrial Area

Burrup Peninsula WA

You are advised that your application for a licence to operate the works prescribed under the *Environmental Protection Act 1986* at the above-mentioned location has been approved subject to the attached conditions. Please note your receipt will be forwarded to you shortly.

If any aspect of the conditions of licence aggrieves you, you may lodge an appeal, accompanied by the \$50.00 fee, with the Minister for the Environment within 21 days from the date on which this licence is received. Members of the public may also appeal conditions. Please contact the Appeals Registrar at the Office of the Appeals Convenor on 9221 8711 after the closing date of appeals to check whether any appeals were received.

Under Section 58 of the *Environmental Protection Act 1986*, it is an offence to contravene a licence condition. This offence carries a penalty of up to \$125,000, with a daily penalty of up to \$25,000. The Department considers that a breach of this section, or any other section, of the *Environmental Protection Act 1986* to be extremely serious.

If you have any questions relating to the licence or licence conditions, please do not hesitate to contact Cameron Sudintas of the Pilbara Region on 9182 2035.

Yours faithfully

Paul Byrnes
Manager Licensing Policy Unit

Thursday, 19 April 2007

encs: Licence 7997/3
copy to: Local Government Authority: Shire of Roebourne
Water Corporation

DIRECTOR GENERAL AND ENVIRONMENTAL SERVICES DIVISIONS: The Atrium, 168 St Georges Terrace, Perth, Western Australia
Phone: (08) 6364 6500 Fax: (08) 6364 6520 TTY: 1880 555 630

PARKS AND CONSERVATION SERVICES DIVISIONS: Executive: Corner of Australia II Drive and Hackett Drive, Crawley, Western Australia
Phone: (08) 9442 0300 Fax: (08) 9386 1578 Operations: 17 Dick Perry Avenue, Technology Park, Kensington, Western Australia
Phone: (08) 9334 0333 Fax: (08) 9334 0498 Teletype: (08) 9334 0546

POSTAL ADDRESS FOR ALL DIVISIONS: Locked Bag 104, Bentley Delivery Centre, Western Australia 6983
www.dec.wa.gov.au



LICENCE FOR PRESCRIBED PREMISES

Environmental Protection Act 1986

LICENCE NUMBER 7997/3

FILE NUMBER L12/02

LICENSEE AND OCCUPIER OF PREMISES

Burrup Fertilisers Pty Ltd
Level 8 St Georges Square, 225 St Georges Terrace
PERTH, WA, 6000
ABN: 740 9544 1151

NAME AND LOCATION OF PREMISES

Burrup Ammonia Plant
De Witt Location 564, Vol 3125, Folio 243 King Bay – Hearson Cove Industrial Area
Burrup Peninsula WA

PRESCRIBED PREMISES CATEGORY

Schedule 1 of the *Environmental Protection Regulations 1987*

CATEGORY	DESCRIPTION
31	Chemical Manufacturing

CONDITIONS OF LICENCE

Subject to the conditions of licence set out in attached 3 pages.

Officer delegated under Section 20
of the *Environmental Protection Act 1986*

ISSUE DATE

Thursday, 19 April 2007

COMMENCEMENT DATE

Saturday, 21 April 2007

EXPIRY DATE

Sunday, 20 April 2008

CONDITIONS OF LICENCE

Environmental Protection Act 1986

LICENCE NUMBER 7997/3

FILE NUMBER L12/02

DEFINITIONS

In these conditions of licence, unless otherwise specified in the subject matter:

“ANZECC water quality guidelines” means the Australian and New Zealand Guidelines for Fresh and Marine Water Quality, published by the Australian and New Zealand Environment and Conservation Council, October 2000.

“Brine Return Line” means the desalination plant brine return pipeline operated by the Water Corporation.

“Director” for the purpose of correspondence means:

Manager, Pilbara Regional Office

Department of Environment and Conservation

PO Box 835

Telephone: (08) 9182 2000

KARRATHA WA 6714

Facsimile: (08) 9144 1118

“Licensee” for the purpose of this licence means Burrup Fertilisers Pty Ltd;

“M4” means the wastewater sampling point for the combined waste streams, prior to wastewater entering the Water Corporation’s Brine Return Line.

“Operations Erosion Control and Stormwater Management” means the stormwater management outlined in the Licensee’s ‘Operations Environmental Management Plan and Environmental Work Instructions’.

“Operations Water Quality Monitoring Procedure” means the water quality monitoring procedures outlined in the Licensee’s ‘Operations Environmental Management Plan and Environmental Work Instructions’.

“The Plant” means the Burrup Ammonia Plant operated by the Licensee.

CONDITIONS OF LICENCE

Environmental Protection Act 1986

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WASTEWATER REQUIREMENTS

1. The Licensee shall monitor the effluent stream from the sampling point listed in Table 1, Column 1 for the parameters listed in Table 1, Column 2 in units listed in Table 1, Column 3 at the frequency stated in Table 1, Column 4.

Table 1: Wastewater monitoring

Column 1	Column 2	Column 3	Column 4
Sampling points	Parameter	Units	Frequency
M4	Ammoniacal Nitrogen Copper Zinc	Micrograms per litre	Weekly

2. The Licensee shall provide to the Director, a biannual summary report of data from wastewater monitoring, undertaken as per Condition 1, for the purpose of verifying the Plant's wastewater quality. The reports shall be submitted to the Director by 30 September 2007 and 31 March 2008.
- 3 (a) The Licensee shall provide to the Director, by 19 October 2007, a plan for the investigation and identification into elevated concentrations of wastewater parameters discharged into the Brine Return Line.
- 3 (b) The licensee shall ensure that the plan, referred to in condition 3 (a), shall include, but not be limited to the following:
- (i) Identification of the source(s) of elevated concentrations of ammoniacal nitrogen, copper and zinc at the M4 sampling point;
 - (ii) Identification of treatment methods and other measures to be implemented by the Licensee to reduce these concentrations to below the ANZECC water quality guidelines for '90% level of species protection'; and
 - (iii) Details of any actions and associated timeframes to reduce the elevated concentrations of contaminants identified at the M4 sampling point.

ANNUAL ENVIRONMENTAL REPORT

4. The Licensee shall provide to the Director, by 31 March 2008, an Annual Environmental Report for the reporting period of 2 March 2007 to 1 March 2008. The report shall contain, but not necessarily be limited to:
- (i) Monitoring data required by any condition of this licence;

CONDITIONS OF LICENCE

Environmental Protection Act 1986

LICENCE NUMBER 7997/3

FILE NUMBER L12/02

-
- (ii) Monitoring data or other data collected as per the Licensee's 'Operations Erosion Control and Stormwater Management' document.
 - (iii) Monitoring data or other data collected as per the Licensee's 'Operations Water Quality Monitoring Procedure' document.
 - (iv) A summary of incident reports for any non standard wastewater discharges, emergency flaring or venting during upset conditions.

ENVIRONMENTAL ASSESSMENT REPORT

BurruP Fertilisers Pty Ltd

Ammonia Plant

April 2007

ENVIRONMENTAL ASSESSMENT REPORT

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ENVIRONMENTAL ASSESSMENT REPORT

LICENCE NUMBER: 7997/3
LICENCE FILE NUMBER: L12/02
EXPIRY DATE: 20/04/2008

PREMISES DETAILS

LICENSEE AND OCCUPIER

Burrup Fertilisers Pty Ltd
Level 8 St Georges Square, 225 St Georges Terrace
PERTH, WA, 6000
ABN: 740 9544 1151

PREMISES

Burrup Ammonia Plant
De Witt Location 564, Vol 3125, Folio 243 King Bay – Hearson Cove Industrial Area
Burrup Peninsula WA

PRESCRIBED PREMISES CATEGORY

Table 1: Prescribed Premises Category from Schedule 1 of the *Environmental Protection Regulations 1987*

Category number	Description	Production or Design Capacity	Nominated Rate of Throughput	Throughput Classification *
31	Chemical manufacturing	770 000 tonnes per year (2 200 tonnes per day)	770 000 tonnes per year (2 200 tonnes per day)	100 tonnes or more per year

* From Schedule 4 of the *Environmental Protection Regulations 1987*

This Environmental Assessment Report (EAR) has been drafted for the purposes of detailing information on the management and mitigation of emissions and discharges from the prescribed premises. The objective of the EAR is to provide a risk assessment of emissions and discharges, and information on the management of other activities occurring onsite which are not related to the control of emissions and discharges from the prescribed premises activity. It is important to note that the licence is not a mechanism to regulate those activities that occur on-site that are not related to the prescribed premises activity.

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Basis of Assessment

The Burrup Ammonia Plant has been assessed as a "prescribed premises" category number 31 under Schedule 1 of the *Environmental Protection Regulations 1987*.

Category 31 – Chemical manufacturing: premises (other than premises within category 32) on which chemical products are manufactured by a chemical process.

Burrup Fertilisers Pty Ltd (BFPL) process natural gas piped from offshore to produce 770 000 tonnes per annum (tpa) of liquid ammonia (see section 1.3).

BFPL also produce electric power on site, which has previously been licensed under category 52 of the *Environmental Protection Regulations 1987*. Review of BFPL's power generation identified that electric power was produced by steam from the ammonia plant's auxiliary boilers and not directly from burning fuel. DEC considers the burning of fuel in boilers for the supply of steam to be consistent with the Category 67 - *Fuel burning: premises on which gaseous, liquid or solid fuel is burnt in a boiler for the supply of steam or in power generation equipment*. However, as the amount of fuel burnt in the boilers is less than the licensing threshold for category 67, BFPL's power generation does not require licensing.

BFPL's sewage treatment facility has a design capacity to treat and discharge 17 cubic metres of waste per day, although the system will be operated to produce only five cubic metres per day. As the design capacity is less than the requirements under category 54 and 85 of Schedule 1 of the *Environmental Protection Regulations 1987*, BFPL's sewage treatment facility does not require licensing.

1 BACKGROUND

1.1 GENERAL COMPANY DESCRIPTION

BFPL is a private, independent company promoted by Oswal Projects Limited (OPL), part of the Oswal Group, who own and operate two large fertiliser plants in India. BFPL was formed in 2000 and its headquarters are located in Perth, Western Australia.

BFPL operate the Burrup Ammonia Plant (the Plant) which is one of the world's largest ammonia plants. The Plant processes natural gas supplied from the Harriet Joint Venture to produce liquid ammonia, which is predominantly sold to Asian countries and other world markets, including Australia. Ammonia produced from the Plant is used for manufacturing chemicals such as ammonium nitrate, sodium cyanide and concentrated fertilisers such as di-ammonium phosphate and urea.

1.2 LOCATION OF PREMISES

The Burrup Peninsula (Burrup) is a rocky headland on the West Pilbara coast, extending north 20 kilometres out into the Dampier Archipelago. Until the mid-1960s the Peninsula was known as Dampier Island and was separated from the mainland by shallow tidal waters and mudflats. It is

now joined to the mainland by a causeway constructed to provide road and rail access to the port facilities in Dampier and to provide bunds for the Dampier Salt evaporation ponds.

The Plant is located approximately 25 kilometres by road from the town of Karratha at De Witt Location 564, Volume 3125, Folio 243 on the Burrup. The site is situated in the King Bay – Hearson's Cove Industrial Area and occupies an area of approximately 72 hectares, although the actual Plant footprint is about 20 hectares. This industrial estate comprises an additional 4 sites, on which are currently proposed another ammonia plant, urea plant, ammonium nitrate plant and a synthetic fuels plant.

Although the Plant location is zoned as an 'Industrial Estate', significant environmental and cultural values exist within close proximity to the site. In developing the Burrup Industrial Park, of which King Bay – Hearson's Cove is one Industrial Area, a portion of the Burrup was set aside for conservation purposes. This land has been proposed as a Conservation Reserve by the Department of Environment and Conservation (DEC, 2006).

1.2.1 Topography

The most prominent landscapes on the Burrup include: scree slope terrain (or rocky hills) of terraces, plateaux, gorges, valleys and rocky cliffs; undulating terrain of isolated rocky outcrops and valley floors; and low coastal terrain of mudflats, sandy beaches and associated landforms of the coastal area (DOIR, 2004). The Plant lease is bordered to the south by tidal flats which form an east-west directional valley connecting Hearson's Cove to the east and King Bay to the west of the Peninsula. An area of high scree slopes on the northern border of the lease acts as a catchment and feeds into shallow drainage lines.

1.2.2 Geology/Soils

The geology of the Burrup varies significantly to create a diverse range of landforms. The Burrup and nearby islands are composed mainly of ancient basalts which have weathered to form the 'rock piles' that characterise the landscape. The Plant site is bordered by these rock piles, or scree slopes, to the north and a low lying expanse of tidal mudflats to the south. The mudflats consist of sandy silts which are often organically rich and containing shell fragments.

1.2.3 Hydrology/Hydrogeology

There are no permanent surface water features on the Burrup, with rainfall dependent intermittent surface water storage in rock pools and creeks. Surface water runoff after rain is high due to the impervious nature of the terrain. Runoff from the northern scree slopes has created shallow ephemeral drainage lines, which have been diverted around the site, before reaching the tidal mudflats and draining into King Bay and Mermaid Sound. Hypersaline groundwater occurs under the coastal flats and a tidally influenced aquifer of salt water occurs in low-lying coastal soils.

1.2.4 Flora/Fauna

The Burrup forms part of the Abydos Plain, within the Fortescue Botanical District. The vegetation in proximity to the Plant is described as open mixed Shrubland over Hummock grass with mangrove communities existing nearby in King Bay. Whilst there is no known declared rare flora identified on the Peninsula, four priority species have been recorded in the area. Only one of the priority flora species, *Terminalia supranitifolia* (Priority 1), was located within the Plant site.

The diverse topography of the Burrup has created a wide variety of habitat types, supporting a diverse range of fauna. Habitats of restricted and reserved listed species were identified adjacent to and within the Plant site during Environmental Impact Assessment surveys. The distinct mounds created by the Western Pebble Mound Mouse *Pseudomys chapmani* (Priority 4 species) and the water rat *Hydromys chrysogaster* (Priority 4 species) are likely to be found within the saline flats and drainage gullies adjacent to the Plant site. The Plant footprint has been positioned to avoid impacts to three land snail species that are thought to be endemic to the larger rock piles and high hills within the project lease.

1.2.5 Marine Environment

The marine and coastal environment surrounding the Burrup is comprised of a unique combination of offshore islands, intertidal and subtidal reefs, mangroves, macroalgal communities and coral reefs. These marine features support a diverse range of marine mammals, turtles, seabirds, finfish and invertebrates. Subsequently, the Dampier Archipelago to Cape Preston region has recently been proposed as a Marine Park and an indicative management plan has been developed for the area, outlining the proposed boundaries and management objectives (CALM, 2005).

In order to guide environmental impact assessment and natural resource management of the regions marine ecosystems, a set of environmental values and environmental quality objectives were developed in consultation with the community (DoE, 2006). The report recommended that a high level of ecological protection be afforded to Mermaid Sound (including King Bay) to reflect the conservation significance and community expectations for the area. Some industrial use areas such as the Brine Return Pipeline to King Bay and the Dampier Wharf, including the Bulk Liquids Berth, both of which are utilised by BFPL, were recommended a moderate level of ecological protection.

1.3 PROCESS DESCRIPTION

The Plant processes natural gas, from an offshore gas reserve, to produce a maximum of 2 200 tonnes per day (tpd) of liquid ammonia, based on the KBR Purifier Process™. Figure 1 illustrates a simplified process of ammonia production and demonstrates the major inputs and outputs associated with the Plant.

The major inputs include:

- Natural gas; Approximately 81 terra joules per day (TJ/d) of natural gas is used primarily as feed for the production of ammonia and burnt to produce steam for processing and electrical power. Natural gas is supplied by the Harriet Joint Venture, managed by Apache Energy. The Department of Industry and Resources (DOIR) regulate the environmental impacts associated with the supply of natural gas to the Plant under the *Petroleum Act 1967*.
- Desalinated water; The Plant requires approximately 90 cubic metres per hour (m³/hr) of desalinated water, which is used for fire fighting and demineralised for process use. This water is provided by the Water Corporation's thermal desalination plant, located within BFPL's Plant lease. The desalination plant was subject to an Environmental Impact Assessment under Part IV of the *Environmental Protection Act 1986* (see 1.4.2).

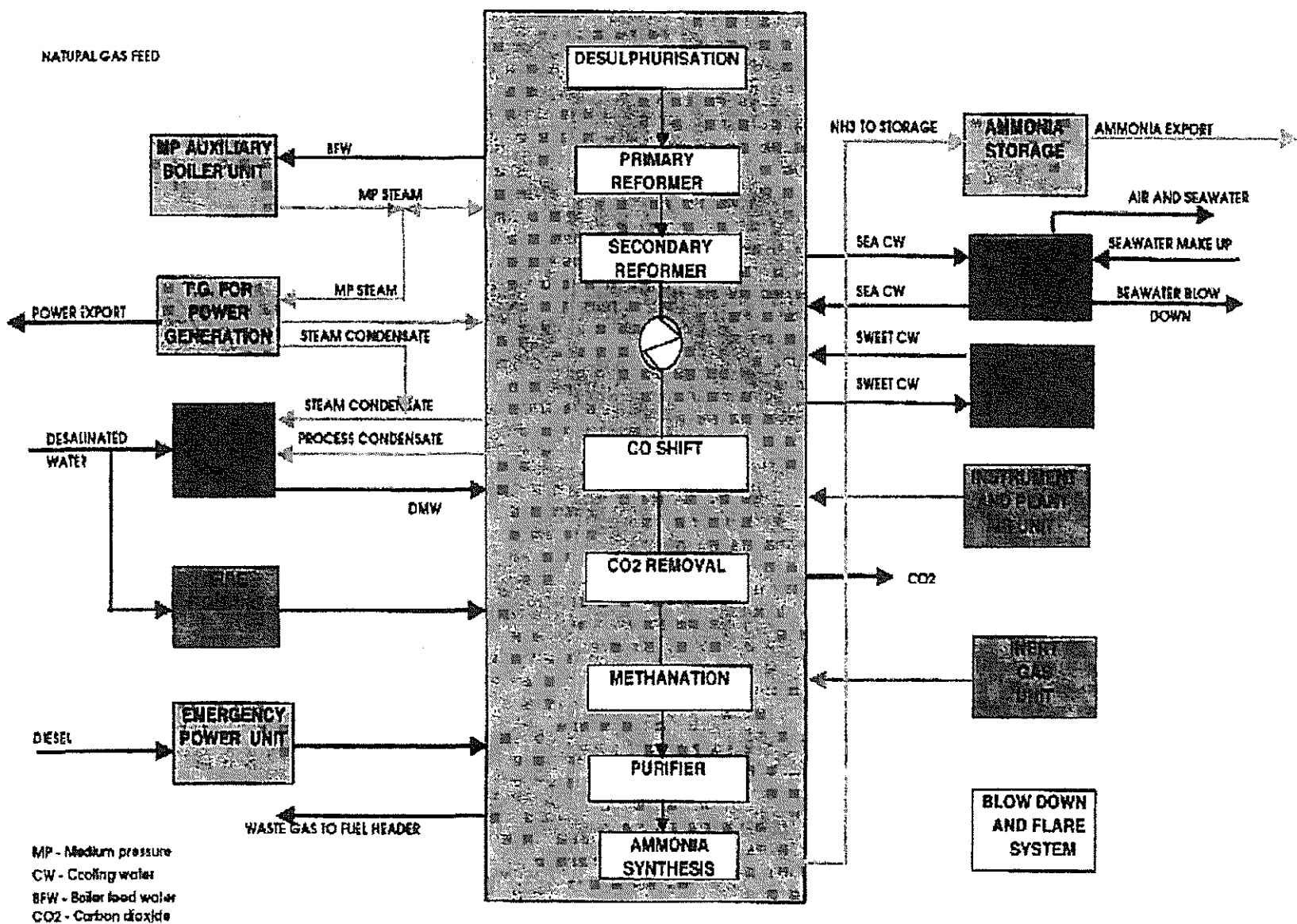
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- Seawater makeup; A closed circuit seawater cooling system is used to cool the Plant. On average, approximately 2000m³/hr of make-up seawater is required to replace seawater that is either lost from the system by evaporation or returned to the Water Corporation's brine return line (BRL). Seawater is sourced from the Water Corporation's seawater supply pipeline, which abstracts seawater from King Bay. The seawater supply project was subject to an Environmental Impact Assessment under Part IV of the *Environmental Protection Act 1986* (see 1.4.2).
- Diesel; A diesel generator with a capacity of 2.0 mega watts was installed to provide power for construction of the Plant and for start-up power. The generator is not used during normal operations of the Plant but has been retained for standby and emergency purposes and therefore licensing under the *Environmental Protection Regulations 1987* does not apply.

Under normal operating conditions, the major outputs associated with the Plant include;

- Ammonia; The Plant is designed to produce a maximum of 770 000 tpa of liquid ammonia, equating to approximately 2 200 tpd. The ammonia is stored in two 40 000 tonne tanks and refrigerated to -33°C to keep the ammonia in liquid form. An above ground export pipeline and recirculation line is used to transport the refrigerated liquid ammonia between the plant site and the Dampier Bulk Liquids Berth, where it is loaded into ships and exported.
- Seawater; Approximately 1 860 m³/hr of concentrated seawater is discharged from the Cooling Tower Blow Down to the BRL, and subsequently into King Bay. The BRL and ocean outfall have been subject to an Environmental Impact Assessment under Part IV of the *Environmental Protection Act 1986* (see 1.4.2).
- Various liquid wastes; Process liquid wastes from the Plant and treated domestic wastewater undergo further treatment in the Wastewater Effluent Sump prior to being discharged into the BRL.
- Atmospheric emissions; The ammonia process generates various atmospheric emissions, particularly from the Primary Reformer, Carbon Dioxide Stripper and Package Boiler. Emissions include nitrogen oxides (NO_x), carbon dioxide (CO₂), ammonia (NH₃) and to a lesser degree particulate matter (PM₁₀) and sulphur dioxide (SO₂). During start up, plant upsets and maintenance periods, these emissions vary considerably (see Appendix A). BFPL report their annual atmospheric emissions to the National Pollutant Inventory (NPI).
- Stormwater runoff; Site drainage of uncontaminated stormwater is directed to the Western and Eastern Sedimentation Basins to reduce water turbidity and facilitate water quality testing prior to discharge to the adjacent King Bat salt flats. The DEC notes that a number of incidents occurred during commissioning of the Plant where the sedimentation basins were used to store or capture liquid wastes in order to investigate treatment and disposal methods (see 1.4.3).

Figure 1: BFPL Ammonia Process (BFPL, 2001)



1.4 REGULATORY CONTEXT

1.4.1 Part III *Environmental Protection Act 1986*, Environmental Protection Policies

No Environmental Protection Policies currently exist over the Karratha, Dampier and Burrup Peninsula areas.

1.4.2 Part IV *Environmental Protection Act 1986*, Environmental Impact Assessment

Ammonia Plant

In March 2001, BFPL's proposed Plant was referred to the Environmental Protection Authority (EPA) and the level of assessment was set at Public Environmental Review (PER). The EPA's report and recommendations to the Minister for Environment was released in December 2001 (Bulletin 1036) and Ministerial Approval for the Plant was issued in February 2002 (Statement No. 586), subject to conditions.

Ministerial Condition 1-1 of Statement 586 details air emission and wastewater discharge criteria that shall be achieved by BFPL under normal operating conditions. The criteria are based on initial predictions for the Plant's proposal in BFPL's PER document and have not been consistently achieved by BFPL since ammonia production began in April 2006. DEC notes that the exceedence in criteria is largely a result of the Plant's commissioning and early operational phases. However, the Plant is now achieving stable operations and BFPL's monitoring data indicates that wastewater is still in excess of some criteria. DEC recommends that BFPL seek to amend their proposal as described in their PER document, under section 45C of the *Environmental Protection Act 1986*, to reflect actual discharges and emissions from the. Any such changes to BFPL's Plant proposal would be assessed by DEC to ensure there is no significant detrimental effect on the environment in addition to, or different from the effect of the original proposal.

Desalination and Seawater Supplies Project

An integral component of BFPL's Plant is the supply of seawater and desalinated water and the discharge of liquid waste to King Bay via the BRL. These services are provided by the Water Corporation's *Desalination and Seawater Supplies Project*, which was assessed by the EPA in May 2001 (Bulletin 1014). The initial proposal involved the operation of a seawater supply system and desalination plant to service the proposed Syntroleum Sweetwater Corporation's water requirements. Ministerial Approval for the Water Corporation's project was issued in June 2001 (Statement No. 567), subject to conditions.

In December 2001, the Water Corporation submitted a proposal to construct a small thermal desalination plant (4ML/d) on the BFPL lease and an additional 1.6 kilometres of seawater supply and brine return pipelines to service BFPL's development. The proposal required no increase in capacity for seawater supply or brine discharge and subsequently was not formally assessed by the EPA.

In order to service the increase in proposed industrial development on the Burrup, the Water Corporation submitted proposed changes to the Ministerial Conditions for their *Desalination and Seawater Supplies Project*. The main changes included:

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- An increase in the capacity of the seawater supply system from 100 ML/d to 280 ML/d.
- An increase in the capacity of the brine discharge into King Bay from 77ML/d to 208ML/d.
- The inclusion of approved discharges of treated industrial and domestic wastewater into the BRL.

The changes were assessed under section 46 of the *Environmental Protection Act 1986* and the EPA released its report and recommendations in March 2002 (Bulletin 1044). Ministerial Approval for the changes was issued in June 2002 (Statement No. 594) which details the Ministerial Conditions and Water Corporation's environmental management commitments for the project. These commitments specify some wastewater criteria to be achieved by the Water Corporation, prior to discharge of brine into King Bay. The commitments also state that wastewater will only be accepted from industrial process plants for which Licence or Ministerial Conditions have been issued. At present, BFPL are the only industrial development that is serviced by the Water Corporation's *Desalination and Seawater Supplies Project*.

1.4.3 Part V *Environmental Protection Act 1986*, Environmental Management

BFPL's Plant has been assessed as a "prescribed premises" under the *Environmental Protection Regulations 1987* and requires a Licence to operate as a chemical manufacturing facility (category 31). Table 2 lists the Works Approvals, Licences and Registrations that have been obtained by BFPL for the construction and operation of the Plant.

Table 2: Summary of Works Approvals, Licences and Registrations for the BFPL Ammonia Plant.

Instrument	Issue Date	Description	Status
<i>Works Approval 3589</i>	15/05/2002	Original Works Approval for construction of the BFPL Ammonia Plant.	Expired
<i>Works Approval 3791</i>	30/06/2003	Amendments made to previous Works Approval, largely relating to monitoring requirements.	Expired
<i>Works Approval 3838</i>	20/10/2003	Works Approval for the construction of a sewage treatment facility during the Plants construction.	Expired
<i>Registration 1571</i>	24/11/2003	Approval to operate the sewage treatment facility (Category 85).	Expired
<i>Licence 7997/1</i>	26/04/2005	Original Licence issued for the commissioning and operation of the Plant (Category 31 and 52).	Expired
<i>Licence 7997/2</i>	21/04/2006	Licence was reissued with amendments relating to monitoring and discharge requirements.	Expires 21/04/07
<i>Licence 7997/3</i>	xx/04/2007	Licence review including a risk assessment of premises for Category 31 (see Table 3).	Current

Environmental Incidents

Section 72 of the *Environmental Protection Act 1986* requires the occupier of a premise to notify DEC when a discharge of waste has occurred that has caused, or is likely to cause pollution or

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environmental harm. During the commissioning and early operational phases of the Plant, BFPL reported the following incidents to DEC;

- January 2006 – Commissioning wastewater from the Cooling Tower with elevated levels of copper-chromate-arsenic was produced following introduction of seawater into the Cooling Tower which flushed residual material from the extensive CCA (copper-chromate-arsenic) treated timber used in the Cooling Tower structure. This wastewater batch of around 11 000 m³ was directed to the Western Sedimentation Basin (WSB), which is designed to contain clean stormwater drainage from the site, for storage while options for disposal or treatment were assessed. Prior to the imminent arrival of Tropical Cyclone Clare and expected heavy rainfall, BFPL discharged the contaminated wastewater to the adjacent King Bay salt flats in order to prevent flooding of the site's ammonia storage area from potential overtopping of the WSB and associated uncontrolled discharge from site to the salt flats. As a result of the potential for environmental impact from this contaminated wastewater, DEC issued an Environmental Field Notice to BFPL, specifying a monitoring regime and reporting timeframe to assess the extent of potential contamination. BFPL instigated a monitoring regime which extended beyond the requirements of DEC and indicated there was no apparent contamination or environmental impact on the salt flats or King Bay from this discharge incident.
- April 2006 – A plant upset resulted in ammonia being sent to the flare, which caused the pilot light to be doused out and therefore ammonia gas to vent to the atmosphere. Fogging of the area was carried out to mitigate the impact of ammonia gas, as per the BFPL emergency response plan. The resultant ammoniated knockdown water pooled primarily around the base of the flare but some flowed into the WSB. A faulty valve in the WSB outlet to the salt flats allowed some of the ammoniated knockdown water to leak through the outlet. This resulted in localised fish and invertebrate deaths for some few hundred meters along the ephemeral waterways of the salt flats, however no impact on fishes or invertebrates was observed where the salt flats drained into King Bay. DEC issued an Infringement Notice to BFPL, under the *Environmental Protection (Unauthorised Discharge) Regulations 2004*, for a discharge with pH greater than 10. Further remediation and mitigation measures were undertaken by BFPL including repairs to the WSB outlet valve and removal of ammoniated knockdown water from site.
- May 2006 – A plant upset caused a quantity of process gas and aMDEA (solvent) to be released to the atmosphere. Approximately 35 200 litres of aMDEA was spilt to ground and flowed to the WSB or pooled on site. Initial samples from groundwater monitoring bores showed varying levels of aMDEA in the groundwater. However a review of the laboratory method used for aMDEA indicated the method may be erroneous for saline matrices so the initial results may have been false. Subsequently, a suitable method for analysis of saline samples was developed and re-sampling of the groundwater monitoring bores showed no aMDEA in the groundwater. aMDEA contaminated soil and pooled liquid from site was removed and disposed appropriately. aMDEA contaminated water in the WSB was eventually treated in-situ, to the satisfaction of the DEC, in order to decrease levels of aMDEA prior to discharge via the BRL.
- July 2006 – A burst pipe in the Plant resulted in the release of freshwater onsite, which drained to the sedimentation basins. No further action was taken by DEC.

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- August 2006 – A plant upset caused an inability to maintain the required pressure in the ammonia condensers, resulting in the release of ammonia vapours to the site flare. Due to the high velocity of the vapour which was sent to the flare, adequate combustion did not occur and the ammonia vapour was released to the atmosphere. Public concern regarding this incident was high as offensive odours impacted the King Bay Supply Base and Industrial Area. Due to the public health and safety concerns regarding the release of ammonia vapours, the Department of Consumer and Employee Protection undertook a thorough investigation into the cause and impacts of the incident. BFPL submitted to DEC an investigation report, which noted that no evidence was found to substantiate initial reports of wildlife deaths. In response to the public health and safety concerns, BFPL adopted the advanced notification system, 'MissionMode', to ensure all potentially affected premises and/or regulatory and emergency agencies are promptly notified of future incidents at the Plant.
- August 2006 – A plant upset resulted in waste gases to be vented from the Plant. No ammonia was released as a result of this incident and no further action was taken by DEC.
- April and August 2006 – Two separate incidents in the seawater cooling system (burst pipes) resulted in the release of seawater onto the site, which drained to the sedimentation basins. No further action was taken by DEC.
- March 2007 – A minor spill of ammoniated water (approximately 80L) occurred during the transfer of ammoniated water from site. Spill kits were used to contain and absorb the spill and the impacted soil was removed from site. No further action was taken by DEC.
- March 2007 – Approximately 100L of diesel spilled to ground during the refuelling of a portable diesel generator. Hydrocarbon spill kits were used to absorb and contain the spilled liquid prior to the excavation and removal of diesel impacted soil. No further action was taken by DEC.

DEC notes that the above mentioned incidents were a result of the commissioning and early operation phases of the Plant. As BFPL have now finalised all commissioning and are beginning to achieve stable operations, DEC anticipate a significant reduction of reportable incidents from the Plant. Of note also is that commissioning wastewater from the Cooling Tower, which contained substantial amounts of copper-chromate-arsenic as a result of washable residue from the timber support structure, was associated only with the commissioning phase and is not produced during stable operation of the Plant.

1.4.4 Other Environmental Protection Regulations

BFPL, as operators of the Plant, are also subject to the following regulations:

- *Environmental Protection (Unauthorised Discharges) Regulations 2004;*
- *Environmental Protection (Controlled Waste) Regulations 2004;*
- *Environmental Protection (Noise) Regulations 1997;*
- *Environmental Protection (Clearing of Native Vegetation) 2004; and*
- *Environmental Protection (NEPM-NPI) Regulations 1998.*

The *Environmental Protection (NEPM-NPI) Regulations 1998* require all facilities handling more than a specified quantity of a substance listed by the National Environmental Protection Council to report the total emissions of that substance to the DEC. The emissions are listed in a national pollution inventory (NPI) for dissemination of information to all sectors of the community, regarding emission of substances to air, land, and water.

The emissions profile for BFPL is consistent with the emissions expected from chemical manufacturing activities, which primarily consist of combustion products. Relevant figures for total amounts discharged can be found in Appendix A, Table 4.

1.4.5 Rights in Water Irrigation Act 1914

BFPL do not use groundwater at the Plant and therefore are not licensed under the *Rights in Water Irrigation 1914*.

1.4.6 Department of Consumer and Employee Protection (DoCEP)

Department of Consumer and Employment Protection (DoCEP) regulate the storage of chemicals and dangerous goods through the *Explosive and Dangerous Goods Act 1961* and the *Explosive and Dangerous Goods Regulations 1992*. BFPL have obtained a Dangerous Goods Storage Licence (DGS017039) for the storage of fuels, cryogenic liquids, toxic and corrosive substances on site. Conditions of the Dangerous Goods licence require compliance with Australian Standards for storage and handling of such substances and conforming to the National Standard for control of Major Hazard Facilities [NOHSC:1014 (2002)].

DoCEP are the key regulator of health and safety issues pertaining to the commissioning and operation of the Plant, which are often closely related to environmental issues. Subsequently, some of the environmental incidents described in section 1.4.3 involved an overlap between DEC and DoCEP in investigation and follow up actions.

1.4.7 National Heritage of Australia Act 1997

Aboriginal heritage issues are not directly relevant to this licence review and assessment of current operations so they will not be considered in detail. The potential impact of industry air emissions to Rock Art on the Burrup is being investigated through the ongoing Burrup Peninsula Air Pollution Study being undertaken by CSIRO on behalf of the Burrup Rock Art Monitoring Management Committee.

2 STAKEHOLDER AND COMMUNITY CONSULTATION

SUBMISSIONS RECEIVED DURING 21 DAY PUBLIC COMMENT PERIOD

The Application for Licence details for this facility were advertised in the West Australian newspaper on 5 March 2007 as a means of advising stakeholders and to seek public comments. No submissions were received by DEC.

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3 EMISSIONS AND DISCHARGES RISK ASSESSMENT

The DEC considers that conditions should focus on regulating emissions and discharges of significance. Where appropriate, emissions and discharges which are not significant should be managed and regulated by other legislative tools or management mechanisms. The following section assesses the environmental risk of potential emissions from the BFPL Ammonia Plant. In order to determine the site's appropriate environmental regulation, an emissions and discharges risk assessment was conducted of the premises using the environmental risk matrix outlined in Appendix B. The results of this are summarized in Table 3.

Table 3: Risk assessment and regulatory response summary table.

Discharge	Significance of emissions	Socio-Political Context of Each Regulated Emission	Risk Assessment	DoE Regulation (EP Act - Part V)	EAR Reference	Other management (legislation, tools, agencies)
Air emissions (point source)	2 – Air emissions of concern are nitrogen oxides, sulphur dioxide, particulates (PM ₁₀) and ammonia. The most significant air emission is nitrogen dioxide which is predicted to reach 39% of NEPM standards during worst case operating conditions and 15% during normal operations. Low levels of sulphur dioxide and particulates from the Plant have been assessed as low significance.	Medium level of public interest in Oxides of nitrogen (NOx) emissions in regards to impact on the Burrup Peninsula.	D – Other management mechanisms suitable.	LIC – No licence conditions	Appendix A Section 1.1	<i>Environmental Protection (NEPM – NPI) Regulations 1998</i> for the reporting of NPI listed substances. Ministerial Condition 1-1 of Statement No. 586. Operations Environmental Management Plan (Operations Air Quality Monitoring & Dust Management) commitments.
Dust emissions	N/A	N/A	N/A	LIC – N/A	N/A	N/A
Odour emissions	N/A	N/A	N/A	LIC – N/A	N/A	N/A

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Noise emissions	<p>2 – Noise emissions from the Plant are minimal, although conservative modelling suggests the Plant will be audible in certain conditions from Hearson's Cove.</p> <p>Under worst case operating conditions, the Plant will emit less than 50% of the assigned noise criteria for 'commercial premises' as assigned under the <i>Environmental Protection (Noise) Regulations 1997</i>.</p> <p>To date, no noise complaints have been received by DEC or BFPL regarding the Plant.</p>	Low level of community concern regarding noise from the Plant. Dampier is located over 6km south of the Plant.	D – Other management mechanisms suitable.	LIC – No licence conditions	N/A	<p><i>Environmental Protection (Noise) Regulations 1997.</i></p> <p>Operations Environmental Management Plan (Operations Noise Management Procedure) commitments.</p>
Light emissions	<p>1 – No light sensitive receptors in close proximity to the Plant.</p> <p>Lighting has been designed to Australian Standard (AS4282) to minimise obtrusive effects.</p>	Low level of community concern regarding light spill from the Plant. Lighting from industries, such as the Karratha Gas Plant, is prominent on the Burrup.	E – No regulation, other management mechanisms suitable.	LIC – No licence conditions	N/A	<p>General provisions of the <i>Environmental Protection Act 1986</i>.</p> <p>Operations Environmental Management Plan (Operations Visual Amenity Management Procedure) commitments</p>
Discharges to water	Liquid wastes from site are discharged to the Water Corporation's Brine Return Line (BRL) and subsequently into King Bay. The BRL is owned and operated by the Water Corporation and is not a part of this assessment (see 1.4.2). However, BFPL's liquid wastes entering the BRL are assessed in this report (see 'Liquid/solid wastes') and are regulated by this licence.	N/A	N/A	LIC – N/A	N/A	N/A

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Discharges to land	<p>Stormwater drainage is discharged from the sedimentation basins to the King Bay salt flats subsequent to water quality testing.</p> <p>Treated wastewater from BFPL's sewage treatment facility is currently discharged to absorption trenches on site. BFPL propose future works to the facility to discharge the treated effluent to the BRL. DEC supports this proposal as the effluent will undergo additional treatment and monitoring with other process liquid wastes discharged to the BRL.</p>	Not part of prescribed activity.	Not part of prescribed activity	LIC - N/A	N/A	<p><i>Environmental Protection (Unauthorised Discharge) Regulations 2004.</i></p> <p>General provisions of the <i>Environmental Protection Act 1986.</i></p> <p>Operations Environmental Management Plan (Operations Erosion Control and Stormwater Management) commitments.</p>
Liquid / solid wastes	<p>Wastewater from BFPL enters the Water Corporation's BRL and is subsequently discharged into King Bay. Wastewater parameters of concern entering the BRL are heavy metals such as copper and zinc, which have a significance factor of 5 when compared to the ANZECC water quality guidelines for '90% level of species protection'. Wastewater concentrations of ammoniacal nitrogen also pose an environmental risk and have a significance factor of 4.</p> <p>Solid waste material from the Plant can potentially contaminate groundwater and surface water, contribute pressure to landfill facilities and impact human health. Waste management audits are conducted by BFPL to ensure they are compliant with their Operations Waste Management Procedure.</p>	<p>Medium High level of community concern regarding Pilbara coastal water quality. King Bay has been afforded a 'High Level of Ecological Protection'.</p> <p>Low level of community concern regarding solid waste from the Plant.</p>	<p>Copper and zinc: A - Do not allow (fix)</p> <p>Ammoniacal nitrogen: B - Licence conditions suitable</p>	<p>LIC - Licence condition for an Environmental Improvement Plan for wastewater discharges.</p> <p>Recommendation for coordinated monitoring of King Bay with the Water Corporation.</p>	Appendix A Section 1.2	<p><i>Environmental Protection (Unauthorised Discharge) Regulations 2004.</i></p> <p>General provisions of the <i>Environmental Protection Act 1986.</i></p> <p>Ministerial Condition 1-1 of Statement No. 586.</p> <p><i>Environmental Protection (NEPM - NPI) Regulations 1998</i> for the reporting of NPI listed substances.</p> <p>Operations Environmental Management Plan (Operations Water Quality Monitoring Procedure and Operations Waste Management Procedure) commitments.</p> <p><i>Environmental Protection (Controlled Wastes) Regulations 2004.</i></p> <p>National Pollutant Inventory reporting requirements.</p>

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Hydrocarbon/ chemical storage	I – Storage of hydrocarbons and chemicals (including ammonia export facilities) are in accordance with DoCEP regulatory requirements.	Low level of community concern regarding the storage of hydrocarbons and chemicals on site.	E – No regulation, other management mechanisms suitable.	LIC – No licence conditions	N/A	Dangerous Goods Storage Licence (DGS017039) and relevant legislation administered by DOCEP. Operations Environmental Management Plan (Hazardous Materials Management Procedure) commitments.
Native vegetation clearing	N/A	N/A	N/A	LIC – N/A	N/A	N/A
Contaminated site identification	I – Incidents resulting in the contamination of soil were followed by full remediation and validation reports. Groundwater is monitored in accordance with BFPL's Operations Water Quality Monitoring Procedure.	No community concern regarding the identification of contamination on site.	E – No regulation, other management mechanisms suitable.	LIC – N/A	N/A	<i>Contaminated Sites Act 2003</i> Operations Environmental Management Plan (Operations Water Quality Monitoring Procedure) commitments.

4 GENERAL SUMMARY AND COMMENTS

Burrup Fertilisers Pty Ltd (BFPL) own and operate one of the worlds largest ammonia producing plants, located on the Burrup Peninsula in Western Australia. The plant processes natural gas from the North West Shelf to produce liquid ammonia, which is exported predominately to India and other world markets.

BFPL's ammonia plant (the Plant) produces approximately 770 000 tonnes per year of liquid ammonia and requires a licence to operate under Category 31 (chemical manufacturing) of Schedule 1 of the *Environmental Protection Regulations 1987*. The Plant has been assessed as 'high priority' in accordance with the Department of Environment and Conservation's (DEC) prioritising procedure, due to the nature of its operations, size and location. Subsequently, a licence has been issued for a period of one year in order to allow for the continued review of licence conditions and monitoring data to define the Plant's actual emissions and discharges.

Air Emissions

The Plant's air emissions are considered to pose a low risk to the environment as they have been addressed at the initial design stage of the Plant to achieve various international and Australian guidelines for gas turbine emissions. In accordance with DEC licensing policy, air emissions from the Plant do not warrant licence conditions for discharge limits (DoE, 2006b). Ministerial Statement 586 specifies the key air emission criteria that should be achieved by the Plant and DEC considers that air emissions can be adequately managed under the Part IV approval and general provisions of the *Environmental Protection Act 1986*.

BFPL have committed to an air monitoring program in their Operations Air Quality Monitoring and Dust Management document, and subsequently have Ministerial requirements to continue their monitoring of air emissions from the Plant. As such, licence conditions relating to air quality

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monitoring are not required. It is required however that BFPL submit their air quality data to DEC in their Annual Environmental Report.

In view of increased industrial activity on the Burrup and subsequent increase in ambient NO_x levels, DEC also recommend that BFPL review the sites NO_x emissions to identify potential reductions and to validate NO_x modelling predictions from their Public Environmental Review document.

Land discharge

Non-routine discharges of stormwater from the sedimentation basins to the King Bay salt flats are not part of the prescribed activity and do not require regulation through licence conditions. In addition licence conditions requiring groundwater monitoring are not required as BFPL have Ministerial conditions to undertake these activities as per their Operations Environmental Management Plan.

Wastewater discharge

Concentrations of copper, zinc and ammoniacal nitrogen in wastewater discharged from the Plant have been assessed as high to medium-high risk due as they have demonstrated to be substantially higher than original estimations in the Public Environmental Review. In particular, average copper and zinc concentrations discharged to the BRL, and subsequently King Bay, are in excess of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC, 2000) for '90% level of species protection'. The high ecological values associated with King Bay are recognised and it is required that discharges from industry on the Burrup Peninsula do not pose potential risk to these values.

Wastewater discharged from the Plant into the BRL is a combination of wastewater produced by BFPL's Plant and brine waste produced by Water Corporation's Desalination Plant and as a result, the source of the high levels of copper, zinc and ammoniacal nitrogen may not be simply attributable to BFPL's Plant. However, it remains that concentrations of copper, zinc and ammoniacal nitrogen discharged through the BRL are not acceptable and must be addressed. This will require continued co-operation between BFPL and Water Corporation and highlights that there exists a level of complexity in managing and regulating industrial discharge through the *Desalination and Seawater Supplies Project* (section 1.4.2).

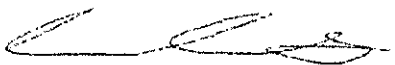
A licence condition is required to initiate an investigation report which shall address the source of elevated copper, zinc and ammoniacal nitrogen discharged through the BRL and to identify options to ensure the relevant ANZECC water quality guidelines are achieved for discharge into the BRL. The report should demonstrate that BFPL are taking all reasonable and practicable measures to prevent or minimise discharges attributable to their Plant, as required under the general provisions of the *Environmental Protection Act 1986*. Licence conditions for monitoring wastewater are also required to ensure that discharges into the BRL from the Plant are accurately defined. As discussed above, ongoing co-operation with Water Corporation will be required in order to properly identify and quantify the source/s of elevated copper, zinc and ammoniacal nitrogen.

DEC also recommend that a coordinated monitoring program for heavy metals and nutrients is undertaken in King Bay to establish background levels in seawater and whether effective mixing is

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occurring from the BRL such that the environmental values of King Bay are being protected. This monitoring program should compliment the existing monitoring undertaken by Water Corporation and could be co-ordinated through the Burrup User Group, which is a Ministerial requirement on Water Corporation's *Desalinisation and Seawater Supplies Project* with the intent to provide a forum to ensure that industrial discharges through the BRL do not threaten environmental values of King Bay.

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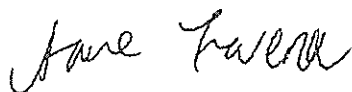


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APPENDIX A: EMISSIONS AND DISCHARGES OF SIGNIFICANCE

1.1 AIR EMISSIONS

Environmental Concerns

Environmental impacts associated with atmospheric emissions in the Pilbara are low, with the exception of dust from iron ore industries. However, high atmospheric levels of nitrogen oxides, particulate matter, sulphur dioxide and ammonia can potentially cause human respiratory problems and inhibit vegetation growth and fertility rates. Nitrogen oxides can also lead to the formation of photochemical smog and CSIRO are investigating the potential for impacts from dissolved nitrogen oxides and sulphur oxides on aboriginal rock art on the Burrup Peninsula.

BFPL Air Emissions

Air emissions from the Plant are primarily a result of natural gas combustion for the production of steam and venting of waste gas created in the ammonia making process. The air emissions of concern are nitrogen oxides (NO_x), and to a lesser degree sulphur dioxide (SO₂) and particulate matter (PM₁₀), which vary under normal operating conditions, during plant shutdown/start up and under upset conditions.

Table 4 identifies the major emission sources of the Plant, estimated annual air emissions and total air emissions reported to the NPI during 2005/2006. Data for the Package Boiler and Primary Reformer are based on 2006/2007 quarterly stack samples, whilst all other emissions are calculated on the design specifications for the Plant and have not been verified. DEC notes that emissions of ammonia are not associated with the operation of the Plant, but may occur from venting during plant upsets.

Table 4: BFPL Air Emissions.

Air Emission	Major Emission Points (g/min)			Total Site Emissions	
	Package Boiler	Primary Reformer	CO ₂ Stripper	Emissions Over 12 Month Period (g/min)	NPI Reported Quantities 2005/2006 (kg/yr)
Carbon Monoxide (CO)	110	1,100	0*	1,269	58,000.00
Carbon Dioxide (CO ₂)	134	878	2,026,535*	2,027,548	N/A
Sulphur Oxides (SO ₂)	12.5	12.5	0*	25.00	3,500
Nitrogen Oxides (NO _x)	78.7	415	0*	493	130,000
Particulates (PM ₁₀)	0	0	0*	0.00000240565**	6,80
Volatile Organic Compounds (VOCs)	0	0	0*	0.00000244970**	5,500

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Methane (CH ₄)	4.1	150	203*	239**	N/A
Hydrogen (H ₂)	0	0	2,638*	4,317**	N/A
Nitrogen (N ₂)	0	0	406*	1,162**	N/A
Acetaldehyde	0	0	0*	0.00002193700**	N/A
Benzene	0	0	0*	0.00002897740**	N/A
1,3-Butadiene	0	0	0*	0.00000111546**	N/A
Formaldehyde	0	0	0*	0.00003390210*	N/A
Total PAH	0	0	0*	0.00000478799**	0.0079
Toluene	0	0	0*	0.00001253670**	19
Xylenes	0	0	0*	0.00000874875**	14
Argon (Ar)	0	0	0*	9.67**	N/A
*Based on plant design specifications. **Emissions that occur during shut down/start-up and have been averaged over one year. These emissions are based on plant design specifications and allow for one shutdown/startup per year.					

Air Quality Standards

The National Environmental Protection Council has developed a series of National Environmental Protection Measures (NEPM), to protect various components of the environment, including ambient air quality. Table 5 shows the predicted ambient air quality for various operations at the Plant, compared to the relevant NEPM criteria. 'Maximum Concentrations Anywhere' refers to the highest concentration located at any point within the air dispersion model grid, which shows that air emissions from the Plant during normal operations are significantly lower than the associated standards. With the exception of NO₂, the Plant's air emissions under normal operations are considered negligible. More information on the air dispersion modelling approach is found in BFPL's PER document.

Table 5: BFPL Ambient Emissions and NEPM Standards (SKM, 2001)

Emission	Operation	Frequency	Maximum Concentrations Anywhere (µg/m ³)	NEPM Standard: Maximum Concentration
NO ₂	Normal Operation	350 days per year	37	246 µg/m ³ (120ppb) for one hour or 98 µg/m ³ (30ppb) over 1 year with an allowable exceedence of 1 day per year
	Maintenance/Startup	10 days per year	81	
	Plant Down Diesel Generator	12 hours per year	96	
	Storage Tank Flaring	1-in-100 years	87	

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SO₂	Plant Down Diesel Generator	12 hours per year	31	520 $\mu\text{g}/\text{m}^3$ (200ppb) for one hour
PM₁₀	Normal Operation	350 days per year	1.5	50 $\mu\text{g}/\text{m}^3$ for one day
	Maintenance/Startup	10 days per year	2.9	

The cumulative impacts of NO_x are an important consideration in determining appropriate DEC management. Other industries on the Burrup also produce NO_x (Woodside, Pilbara Iron Power generation and Shipping) and additional proposals on the Burrup are likely to further increase ambient NO_x levels (Woodside Pluto, Dampier Ammonia and Urea Plants and increased Shipping).

Ambient NO₂ levels on the Burrup have been modelled for existing sources (BFPL, Karratha Gas Plant and Pilbara Iron Power Station). The modelling predicts that the maximum one hour average concentration of NO₂ from existing industries on the Burrup is approximately 54% of the NEPM standard (WEL, 2006). BFPL's maximum contribution to ambient NO₂ levels on the Burrup, during normal operations, is predicted to be approximately 15% of the NEPM standard. DEC notes that these figures are the maximum predicted levels of NO₂ found anywhere on the grid. However, NEPM standards in Western Australia should be applied outside industrial areas and residence free buffer areas around industrial estates (EPA, 1999). Subsequently, the NO₂ emissions from BFPL and other industries would be considerably less than 54% of the NEPM standard if measured from the nearest residence at Dampier.

Air Quality Management and Monitoring

Air quality management on site has been addressed in the design of the Plant by developing design features that minimise atmospheric emissions. Design features of the Plant and operational practices that assist in achieving low air emissions include:

- Adoption of the excess air process
- Use of low sulphur gas from the North West Shelf
- Use of low NO_x burners in the primary reformer and start up heater
- Minimal venting from the plant
- Participation in the Greenhouse Challenge Plus (assists companies in the reduction of greenhouse gases)

BFPL undertake comprehensive air quality monitoring of the Plant, as outlined in their Operations Environmental Management Plan (Operations Air Quality Monitoring & Dust Management). Online flow meters and gas analysers are used to measure the gas volumes and gas parameters emitted from the following sources:

- Primary Reformer
- Boiler Stacks
- CO₂ Stripper (empirical methods are used to calculate the gas emissions instead of gas analysers).

Emissions and volumetric flow rates from the Front End Vent, Ammonia Vent and Flare Stack are calculated based on plant design as physical hazards prevent direct measurement of emissions from these sources.

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To determine emission concentrations from the Primary Reformer Stack, Boiler Stacks and Start-Up Heater Stack, grab sampling (or stack sampling) of the following gases is undertaken on a quarterly basis, in accordance with United States Environmental Protection Authority Standards:

- NO_x (measured as NO₂)
- SO_x (measured as SO₂)
- CO
- PM₁₀
- CO₂
- VOCs

Regulation of Air Emissions

Previous licence conditions (licence 7997/2) specified discharge criteria and monitoring requirements for air emissions from the Primary Reformer and Package Boiler. The discharge criteria were based on the Plant's emission rates predicted in BFPL's PER document. Since stable operating conditions have now been achieved at the Plant (with official opening in April 2006), BFPL's air emissions have been in general compliance with the air emission criteria specified in licence 7997/2. A minor exceedence in CO from the Primary Reformer Stack was reported in BFPL's Annual Environmental Report however, DEC notes that the Plant's total CO emissions were less than the total value specified in the licence criteria.

Air emissions from the Plant are also regulated by Ministerial Statement 586 (condition 1-1), which specifies the daily load, annual load and emissions per tonne of ammonia produced (Table 6). These criteria are also based on the emission rates specified in BFPL's PER document.

Table 6: Air Emission Requirements in Ministerial Statement 586.

Approximate Gaseous Emissions under Normal Operations	Daily Load (kg/day)	Per tonne of NH ₃ (kg/tonne)	Annual Load (tonnes/year)
NO _x	1 439	0.65	503
CO ₂	4.03 x 10 ⁵	1 832	1 411 000
CO	295	0.13	103
SO ₂	1.7	0.0008	0.6

Air emission data is recorded in BFPL's Annual Environmental Report and submitted to the DEC for review. BFPL also report air emissions listed in the National Environmental Protection (National Pollutant Inventory) Measure as required under the *Environmental Protection (NEPM – NPI) Regulations 1998*.

1.2 AIR EMISSIONS RISK ASSESSMENT

Significance of Air Emissions

The environmental significance of BFPL's air emissions can be determined by comparing the emissions with a relevant standard or guideline, in this case the Ambient Air Quality NEPM. Table

5 compares the emissions of concern from the Plant with the associated NEPM standards. Under normal operations, SO₂ and PM₁₀ emissions from the Plant are considered to be negligible and less than 20% of the NEPM standard. Subsequently, these emissions are assessed as having a low environmental significance factor of '1' (see Table 11).

NO_x emissions from the Plant may occur at 15% of the NEPM standard during normal operations and up to 39% of the NEPM when diesel generators are used on site. Subsequently, these emissions have been assessed as having a medium-low environmental significance factor of '2'.

Socio-Political Context of Air Emissions

Air emissions from the Plant generally cause little community interest from local residents due to the distance of the Plant to residential areas and the size of the Plant compared to other industries on the Burrup Peninsula, namely the Karratha Gas Plant. There is some public concern about ammonia due to previous incidents at the Plant that resulted in ammonia vapour being vented rather than combusted through flaring and impacting a nearby Industrial Area. However, these incidents were associated with non-routine systems failures at the Plant which have since been addressed (see 1.4.3). As the Plant is designed so that ammonia vapour should not be released to atmosphere under any circumstances, ammonia emissions are not given further consideration for regulation as air emissions. Taking into account the 'distant' proximity of the Plant to residential areas and the medium level of community interest and concern, air emissions from the Plant have been assessed as having 'Low' socio-political context (see Table 12).

Emissions Risk Reduction Matrix

Emissions of SO₂ and PM₁₀ from the Plant have been assessed as having a significance factor of '1' and a 'Low' socio-political context. These emissions have therefore been afforded the Priority Matrix Action Descriptor 'E', which indicates that other management mechanisms, other than the Part V licence, should be used to regulate the emission (see Table 13).

BFPL's NO_x emissions have been assessed as having a significance factor of '2' and a 'Low' socio-political context. The Priority Matrix Action Descriptor 'D' indicates that licence conditions for monitoring and reporting may be used to regulate air emissions of NO_x from the Plant.

1.3 RECOMMENDED STRATEGY FOR MANAGING AIR EMISSIONS

Ambient SO₂ and PM₁₀ levels resulting from the Plant are considered insignificant when compared to the associated NEPM standards and therefore do not require limits or targets as a licence condition. Emissions of NO_x from the Plant are considered by DEC to be more significant. According to DEC Policy Statement 'Limits and targets for prescribed premises (DoE 2006b)', "for an emission equating to 20-50% of an emission standard, or result in 20-50% of an ambient standard or guideline, it might be appropriate to set a target and require monitoring".

Air emissions of NO_x and other substances from the Plant have been specified in Ministerial Statement 586 (Schedule 1) and are shown in Table 6. The criteria have been derived from design specifications of the Plant which achieve the European Fertiliser Manufacturers Association best available technology standards for existing plants. Low NO_x burners are also used at the Plant to

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reduce NOx emissions. Considering the relatively low NOx emissions from the Plant, the technology currently used by BFPL to minimise NOx emissions and given that air emissions have been addressed in Ministerial Statement 586, licence conditions for NOx targets are not recommended.

As industry on the Burrup increases, a comprehensive understanding of NOx emissions from each plant will become increasingly important. DEC recommends BFPL review their air emissions with the aim of identifying possible reductions in NOx discharges and validating NOx modelling results specified in the PER document.

Licence conditions relating to monitoring of BFPL's air emissions are not required as BFPL have Ministerial requirements to continue their air monitoring as per their Air Quality Monitoring and Dust Management document. BFPL are required to submit air quality monitoring data to DEC in their Annual Environmental Report.

2.1 LIQUID/SOLID WASTE

Environmental Concerns

Wastewater from the Plant enters the Water Corporation's Brine Return Line (BRL) and is subsequently discharged into King Bay. Wastewater from the Plant has the potential to affect King Bay from nutrient enrichment and the toxic effect of heavy metal loading. A recent report on Environmental Quality Objectives by the Department of Environment (DoE, 2006), which involved significant public consultation, recommended that the King Bay area is provided a 'High Level of Ecological Protection'. However, where industry discharges occur in King Bay and the surrounding Mermaid Sound, localised mixing zones have been provided a 'Moderate Level of Ecological Protection'.

Solid waste from the Plant is managed by BFPL in accordance with the Operations Waste Management Procedure and Visual Amenity Management Procedure. Solid wastes, including sludge from the domestic wastewater treatment package plant, are removed from site by licensed contractors in accordance with the *Environmental Protection (Controlled Waste) Regulations 2004* and subsequently will not be further addressed in this section.

BFPL Wastewater Discharges

During normal operations, the Plant's wastewater discharges into the BRL are from the following waste streams:

- Cooling Tower Blowdown (1 860 m³/hour)
- Demineralisation Plant (200 m³/hour)
- Reformer Jacket Water Blowdown (4 m³/hour)
- Air Compressor Intercoolers (4 m³/hour)
- Reformer Steam Drum Boiler Blowdown (2.5 m³/hour)
- Package Boiler Blowdown (2 m³/hour)
- Domestic wastewater (5 m³/day) – Domestic wastewater is currently discharged to absorption trenches on site however, BFPL are currently undertaking works to discharge the

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treated effluent to the BRL. For the purpose of this assessment, DEC will consider BFPL's domestic wastewater as a waste stream to the BRL.

The water requirements and wastewater discharges to the BRL from the Plant form part of the Water Corporation's *Desalination and Seawater Supplies Project*, which has been assessed under Part IV of the *Environmental Protection Act 1986* (see 1.4.2). This arrangement means that in addition to seawater supplied to the Plant for its Cooling Tower, brine wastewater from Water Corporation's desalinisation plant is also passed into the Plant and ultimately to the BRL as a mixed component of wastewater discharged from the Plant. As a result of this unique seawater supply arrangement to the Plant, data from Water Corporation's monitoring of seawater and brine waste is now also obtained by BFPL.

Table 7 provides concentrations of a range of parameters discharged from the Plant into the BRL and subsequently into King Bay. This data has been obtained from BFPL's wastewater monitoring from August 2006 to February 2007, during the early operational phase of the Plant. Table 8 provides an example of total volumes and contaminant concentrations in seawater and brine supplied to the Plant compared to contaminant concentrations in wastewater discharged from the Plant to the BRL.

Table 7: Water Quality Entering the Brine Return Line from BFPL.

Parameter	Average (micrograms per litre)	Worst Case (micrograms per litre)
Ammoniacal nitrogen	504	2 800
Total phosphorus	47	620
Total nitrogen	737	3 200
Methanol	4 926	Not available
Dissolved oxygen	94% saturation	>90% saturation
Cadmium	1.2	5
Chromium III	2.7	10
Copper	33.8	160
Iron	101	250
Lead	0.08	2
Mercury	0.03	0.2
Nickel	0.41	7
Zinc	135.7	440

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Table 8: Water Quality Entering the Brine Return Line from the Plant.

Parameter	Inputs		Outputs
	Desalination Brine	Seawater	M4
Quantity (m3/hour)	366	2000	1500
Ammoniacal Nitrogen $\mu\text{g/L}$	243.2	16.5	504
Arsenic $\mu\text{g/L}$	100.6	1.05	7
Copper $\mu\text{g/L}$	37	7.89	33.8
Zinc $\mu\text{g/L}$	61	0	48

Water quality of wastewater discharged from the Plant to the BRL has varied considerably since the Plant began operations in April 2006. DEC note that this is due, in part, to wastewater resulting from late commissioning activities and early operation issues at the Plant including wastewater containing:

- Copper-chromate-arsenic from Blow-down Cooling Tower commissioning (which is different from the Cooling Tower Blowdown) resulting from CCA treated timber similarly to the waste described in section 1.4.3, though a much smaller volume
- Ammoniacal nitrogen and methanol from the Process Condensate Stripper having leaking level glasses which were later repaired under maintenance
- Nitrite from the Fresh Cooling Water system for which the expansion vessel was initially not working to design resulting in overflow which was later rectified by the vendor

However, DEC consider that production of these variable 'one off' waste streams has now finished, with the Plant considered to be under normal operations and producing only the waste streams detailed previously in under 'Process Description' (section 1.3 of main report).

DEC notes that seawater sourced from King Bay represents a major input to the Plant and, following use in the Plant's Cooling Tower, is the major component of discharged wastewater to the BRL as Cooling Tower Blowdown. As a result, it is likely that there is a relationship between levels of various parameters in the incoming seawater and discharged wastewater.

Water Quality Standards

The Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC water quality guidelines) can be used to assess the environmental significance of toxicants discharged into King Bay, which has been provided a 'High Level of Ecological Protection' (DoE, 2006). However, for the purpose of this assessment, it is important to note that wastewater from the BRL is discharged to a mixing zone, which has been afforded a 'Moderate Level of Ecological Protection' (DoE, 2006). Subsequently, the ANZECC water quality guidelines for '90% level of species protection' have been used to assess the environmental significance of the Plant's wastewater discharged into the BRL.

Table 9 compares the average wastewater quality from the BRL with the relevant ANZECC water quality guidelines for toxicants. Whilst the ANZECC water quality guidelines may be used to assess the environmental significance of some wastewater contaminant concentrations entering King Bay, the annual loading of heavy metals and nutrients should also be considered.

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Table 9: BFPL Wastewater Quality Compared to ANZECC Guidelines.

Parameter	Average in BRL ($\mu\text{g/L}$)	ANZECC Guidelines for 90% Species Protection* ($\mu\text{g/L}$)
Ammonia nitrogen	504	1200
Cadmium	1.2	14
Chromium III	2.7	48.6
Copper	33.8	3
Iron	101	Not available
Lead	0.08	6.6
Mercury	0.03	0.7
Nickel	0.41	200
Zinc	135.7	23
* Trigger values for 90% species protection may be applied to highly disturbed ecosystems		

(Note: the guidelines have been applied to toxicants only)

Wastewater Management and Monitoring

BFPL have addressed wastewater management at the Plant by implementing the following treatment features:

- Steam stripping of the process water; Process condensate from the Plant passes through a high pressure process condensate stripper. The stripper is designed to reduce ammonia and methanol concentrations in the process condensate from 1000ppm (inlet) to 10ppm (outlet).
- Neutralisation of acid or alkaline streams: All acidic and alkaline waste streams generated at the Plant are diverted to the wastewater pit for pH check and dosing of acid or caustic (as required) to ensure pH of wastewater is within 0.2 of the receiving environment.
- Secondary treatment of domestic wastewater; Domestic wastewater passes through a primary settlement tank and aeration tank before returning to a secondary settlement tank where flocculants are added to remove finer suspended solids. The effluent is then dosed with chlorine prior to discharge to an irrigation tank (BFPL, *pers comm.*). The treated effluent is currently discharged to absorption trenches however, this was intended only during the construction stage of the Plant when the BRL was also under construction. BFPL propose to commence works to discharge the treated effluent to the BRL, which is consistent with their original proposal as described in the PER document.

BFPL have also incorporated a comprehensive monitoring network into the Plant's design to enable individual waste streams to be monitored separately, before being combined in the BRL. The combined waste streams discharged from the Plant are monitored at location M4, while individual waste streams are also monitored at locations M1, M2, M3 and M5 to identify the source of any elevated levels. BFPL's current monitoring regime, as per their Operations Environmental Management Plan (Operations Water Quality Monitoring Procedure), is detailed in Table 10.

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Table 10: Wastewater Sampling Points and Frequency (BFPL, 2007)

Wastewater Streams Sampled - (Sampling Point)	Parameters Sampled	Frequency
Saline water intake (M1)	Ammoniacal Nitrogen (NH ³ -N) Total Phosphorus (TP) Total Nitrogen (TN) Dissolved Oxygen (DO) pH Cadmium (Cd) Chromium III (Cr III) Copper (Cu) Iron (Fe) Lead (Pb) Mercury (Hg) Nickel (Ni) Zinc (Zn) Flow rate Total Suspended Solids (TSS)	Monthly by Water Corp and BFPL
Cooling Tower Blowdown (M2 - including streams from M1 and M5)	Flow rate Other as required*	Continuously
Neutralised Demineralisation Regenerant Wastewater, Treated Domestic Wastewater, Treated Oily Wastewater (M3)	Ammoniacal Nitrogen (NH ³ -N) Total Phosphorus (TP) Total Nitrogen (TN) Methanol Biological Oxygen Demand (BOD) Total Suspended Solids (TSS) Total Dissolved Solids (TDS) Oil and Grease Flow rate Other as required*	Weekly
Combined Wastewater Streams at Water Corporations Brine Return Line (M4)	Ammoniacal Nitrogen (NH ³ -N) Total Phosphorus (TP) Total Nitrogen (TN) Methanol Dissolved Oxygen (DO) pH Enterococci Thermotolerant coliforms Cadmium (Cd) Chromium III (Cr III) Copper (Cu) Iron (Fe) Lead (Pb) Mercury (Hg) Nickel (Ni) Zinc (Zn)	Continuously for flow rate, temperature, conductivity, ORP and TSS. These are averaged over one month and reported annually. Other parameters monitored weekly.

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	Flow rate Temperature Conductivity Oxidation Reduction Potential (ORP) Total Suspended Solids (TSS) Total Petroleum Hydrocarbons (TPH)	
Package Boiler Blowdown Reformer Steam Drum, Boiler Blowdown Reformer Jacket Water Blowdown (M5)	Ammoniacal Nitrogen (NH ³ -N) Total Phosphorus (TP) Total Nitrogen (TN) Silicon Dioxide (SiO ₂) Total Dissolved Solids (TDS)	Weekly

Regulation of Wastewater Discharge

Previous licence conditions (licence 7997/2) specified monitoring requirements and discharge criteria for wastewater discharges into the BRL. The discharge criteria for heavy metals were largely based on ANZECC water quality guidelines for '99% level of species protection' being achieved at the combined waste stream (M4). Other discharge criteria were based on BFPL's plant design specifications stated in the PER document. Since stable operating conditions have been achieved at the Plant, BFPL have not been able to consistently achieve some of the discharge criteria specified in their licence conditions. DEC determined not to take further action as potential breach of licence conditions due to the following reasons:

- The discharge criteria were based on ANZECC water quality guidelines for '99% level of protection' which should be achieved at the edge of the BRL mixing zone (DoE, 2006), and their application to the Plant's discharge was acknowledged to be not appropriate. However, in line with DEC licensing policy it was determined on reissue of BFPL's licence in April 2006 not to amend these criteria until a comprehensive licence review including an Environmental Assessment Report could be undertaken. It was also determined that it would be premature to undertake such a review until the Plant was considered under normal operations and had at least 6 months of operational monitoring data for wastewater discharge. DEC are now addressing this issue through this EAR and notes that as the mixing zone has been afforded a 'Moderate Level of Ecological Protection', the ANZECC water quality guidelines for '90% level of species protection' are appropriate for risk assessment of discharges from the Plant to the BRL.
- Elevated levels of some parameters in the waste streams resulting from 'one off' late commissioning and early operational as discussed previously. BFPL consulted closely with DEC to achieve practical options for treatment and discharge of these wastes where appropriate or arranged alternative liquid waste disposal where discharge to the BRL was not appropriate.
- Ongoing communication between DEC and BFPL provided assurance that measures were being taken by BFPL to investigate the source of elevated levels of various parameters and to minimise levels in the Plant's discharge to the BRL as best as practical during early operation.

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BFPL's wastewater discharges are also regulated under Ministerial Statement 586 (condition 1-1) which specifies annual load discharge criteria for some parameters based on estimates from BFPL's PER document (Table 11). As it is now evident that concentrations of these parameters in wastewater are higher than anticipated, DEC recommend that BFPL seek to amend their proposal under section 45C of the *Environmental Protection Act 1986*, to reflect actual discharges from the Plant. The amendment will be formally assessed by DEC to ensure there is no significant detrimental effect on the environment in addition to, or different from the effect of the original proposal.

Table 11: BFPL's Discharge Requirements of Ministerial Statement 586

Wastewater discharge	Annual Load (kg/year)
Heavy metals	Negligible/background
Ammoniacal nitrogen	1
Total phosphorus	36.5
Total nitrogen	73
Methanol	1

The discharge of wastewater parameters such as temperature, concentration of oxidising biocide and antiscalent through the BRL into King Bay are regulated through Ministerial Statement 594 as part of Water Corporation's *Desalinated Water and Seawater Supplies Project*. As a result, BFPL have a contractual requirement with the Water Corporation to achieve these criteria.

2.2 LIQUID/SOLID WASTE RISK ASSESSMENT

Significance of Liquid Waste Emissions

The environmental significance of some wastewater parameters entering the BRL can be assessed by comparing wastewater quality from the Plant with the ANZECC water quality guidelines for '90% level of species protection'. Table 9 identifies that under normal operating conditions the discharges of particular concern include copper and zinc, DEC also considers that discharges of ammoniacal nitrogen can potentially impact the environmental values of King Bay and are also of concern. DEC notes that ANZECC water quality guidelines do not specify iron concentrations for '90% level of species protection' and considers that risk assessment of iron discharges from the Plant are not appropriate due to the high iron ore activity in the Pilbara region, and the low ecological impact associated with iron in coastal marine environments.

Monitoring of wastewater discharged from the Plant to the BRL indicates that under the worst case operating conditions in 2006/2007, copper, zinc and ammoniacal nitrogen concentrations were >100% of the relevant ANZECC water quality guidelines. Under normal operating conditions at the Plant, copper and zinc concentrations were also >100% of the guidelines and are subsequently assessed as having a high environmental significance of '5' (see Table 12). The average concentrations of ammoniacal nitrogen are approximately 42% of the ANZECC water quality guidelines and are assessed as having a medium-high environmental significance of '4'.

Socio-Political Context of Wastewater Discharges

Due to environmental and recreational values associated with King Bay and Mermaid Sound, the level of community concern regarding BFPL's wastewater discharge is 'Medium/High'. Taking into account this community concern and considering the 'distant' proximity of the Plant to residential areas, wastewater discharges have been assessed as having 'Low' socio-political context (see Table 13).

Emissions Risk Reduction Matrix

Discharges of copper and zinc have been assessed as having a significance factor of '5', and a 'Low' socio-political context. Copper and zinc have been afforded the Priority Matrix Action Descriptor 'A' and therefore should not be allowed (see Table 14). Discharges of ammoniacal nitrogen have also been assessed as having a 'Low' socio-political context and have been afforded the Priority Matrix Action Descriptor 'B', which indicates that licence conditions may be used to regulate the discharge.

According to DEC Policy Statement 'Limits and targets for prescribed premises' (DoE, 2006b), an emission standard is necessary to impose licence conditions relating to emission limits. As no standards or guidelines can be applied for nutrient discharges into King Bay, total phosphorus and total nitrogen concentrations cannot be regulated by licence conditions which specify discharge concentrations.

2.3 RECOMMENDED STRATEGY FOR MANAGING LIQUID/SOLID WASTES

The ANZECC water quality guidelines have been used to assess the environmental significance of BFPL's wastewater concentrations of toxicants. Applying the guidelines for '90% level of species protection' indicates that BFPL are achieving the criteria for most parameters, with the exception of copper and zinc. In accordance with DEC policy, licence conditions relating to limits should not be imposed on discharges that constitute <20% of an appropriate standard or guideline (DoE, 2006b).

Discharges of copper and zinc from the Plant are typically in excess of ANZECC water quality guidelines (90% trigger values) and should not be allowed to continue at current average concentrations (DoE, 2006b). The source of elevated zinc levels has not yet been determined by BFPL, despite some previous investigation. The high copper levels are thought to still be the result of some leaching from the CCA treated timber in the Cooling Tower and Blowdown Cooling Tower. If this is the case, then it is likely that Arsenic levels may also be elevated. While copper levels in wastewater from the Cooling and Blowdown Cooling Towers have steadily decreased since their commissioning and levels of less than 5µg/litre have been monitored at the discharge into the BRL, levels do not appear to have reached the negligible values predicted for the Plant. However, the Cooling Towers are an integral part of Plant operation and cannot be shut down in isolation to its ammonia production. As a result, shutting down the units and subsequently the Plant, is not the most appropriate course of action at this stage.

Discharges of ammonical nitrogen are approximately 40% of the ANZECC water quality guidelines (90% trigger values). While the risk assessment has applied the ANZECC guidelines for toxicants, DEC note that the ANZECC water quality guidelines for physical and chemical stressors for inshore

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marine waters in North West Western Australia are significantly lower. Subsequently, levels of ammoniacal nitrogen discharged through the BRL must be decreased to reduce longer term risk to the environmental values of King Bay.

DEC note that due to the unique arrangement of the *Desalinisation and Seawater Supplies Scheme*, it is possible that the elevated levels of metals and ammoniacal nitrogen may not be contributed solely from sources within BFPL's Plant. However, it is recommended that a licence condition is used to initiate an investigation report which shall address the source of elevated copper, zinc and ammoniacal nitrogen discharged to the BRL and identify options to ensure concentrations achieve the ANZECC water quality guidelines for '90% level of species protection'. The report should demonstrate that BFPL are taking all reasonable and practicable measure to prevent or minimise discharges attributable to their Plant, as required under the *Environmental Protection Act 1986*.

It is recommended that a monitoring and reporting condition be included for ammoniacal nitrogen, copper and zinc to ensure that levels discharged to the BRL over the 2007/2008 licensing year, while the Plant is under normal operating conditions, are determined. A licensing condition requiring monitoring and reporting of BFPL's wastewater is consistent with DoE Policy Statement 'Regulatory monitoring requirements for prescribed premises'. The policy states that monitoring may be required for the community's right to know and to assess whether wastewater is continuing to be discharged at acceptable levels (DoE, 2006a).

DEC also recommend that a coordinated monitoring program for heavy metals and nutrients is undertaken in King Bay to establish background levels in seawater and their variability and whether effective mixing is occurring from the BRL such that the environmental values of King Bay are being protected. This monitoring program should compliment the existing monitoring undertaken through the Water Corporation's *Desalinated Water and Seawater Supplies Project*. The Burrup User Group may be an appropriate forum through which to discuss and implement such a monitoring program.

Finally, DEC recommend that BFPL seek to amend their original proposal under section 45C of the *Environmental Protection Act 1986*, to reflect actual discharges from the Plant under normal operating conditions.

APPENDIX B: EMISSIONS AND DISCHARGES RISK ASSESSMENT MATRIX

Table 12: Measures of Significance of Emissions

Emissions as a percentage of the relevant emission or ambient standard		Worst Case Operating Conditions (95 th Percentile)			
		>100%	50 – 100%	20 – 50%	<20%*
Normal Operating Conditions (50 th Percentile)	>100%	5	N/A	N/A	N/A
	50 – 100%	4	3	N/A	N/A
	20 – 50%	4	3	2	N/A
	<20%*	3	3	2	1

*For reliable technology, this figure could increase to 30%

Table 13: Socio-Political Context of Each Regulated Emission

		Relative proximity of the interested party with regards to the emission				
		Immediately Adjacent	Adjacent	Nearby	Distant	Isolated
Level of Community Interest or Concern*	5				Medium	Low
	4				Medium	Low
	3				Medium	No
	2	Low	Low	Low	Low	No
	1	No	No	No	No	No

Note: These examples are not exclusive and professional judgement is needed to evaluate each specific case

*This is determined by the DEC using the DEC "Officer's Guide to Emissions and Discharges Risk Assessment" May 2006.

Table 14: Emissions Risk Reduction Matrix

		Significance of Emissions				
		5	4	3	2	1
Socio-Political Context	High				C	D
	Medium High				C	D
	Medium				D	E
	Low			C	D	E
	No			C	D	E

PRIORITY MATRIX ACTION DESCRIPTORS

A = Do not allow (fix)

B = licence condition (setting limits + EMPs - short timeframes)(setting targets optional)

C = licence condition (setting targets + EMPs - longer timeframes)

D= EIPs, other management mechanisms/licence conditions (monitoring/reporting)/other regulatory tools

E = No regulation, other management mechanisms

Note: The above matrix is taken from the DEC Officer's Guide to Emissions and Discharges Risk Assessment May 2006.



Department of
Environment

MJK 2095-05

Your ref:

Our ref:

112/02

Enquiries:

Joanne Nicol

Direct tel:

9144 0228

The Manager
Burrup Fertilisers Pty Ltd
Level 8, St Georges Square, 225 St Georges Terrace
PERTH WA 6000

Dear Sir/Madam

**ENVIRONMENTAL PROTECTION ACT 1986 - AMENDMENT TO CONDITIONS OF
LICENCE**

**Burrup Ammonia Plant (Burrup Fertilisers)
De Witt Location 564, Vol 3125, Folio 243 King Bay-Hearson Cove Industrial Area
Burrup Peninsula WA**

Further to my letter dated Monday, 21 November 2005, please find enclosed conditions which are now applied to your *Environmental Protection Act 1986* Licence

If you have any questions or objections relating to the Licence conditions, please do not hesitate to contact the enquiries officer above on 9144 0228 for clarification or discussion of any grievances you have.

Should you desire to formally object to any aspect of the conditions of Licence, you are entitled under Section 102(2) of the *Environmental Protection Act 1986* to lodge an appeal with the Minister for the Environment; Science. The appeal is required to be received at the Minister's office within 21 days from the date on which this correspondence is received, and needs to be accompanied by a fee of \$50.00.

Yours faithfully

SUSAN WORLEY
MANAGER, NORTH WEST REGION
REGIONAL OPERATIONS DIVISION

Monday, 12 December 2005

enc: Amended Licence Number: 7997/1
copy to: Local Government Authority: Shire of Roebourne



North West Region
Lot 4608 Cherratta Road KIE
Karratha Western Australia 6714
PO Box 836 Karratha Western Australia 6714
Telephone (08) 9144 2000 Facsimile (08) 9144 2610
www.environment.wa.gov.au

WESTERN AUSTRALIA
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AMENDED LICENCE

LICENCE NUMBER: 7997/1

FILE NUMBER: L12/02

NAME OF OCCUPIER:

Burrup Fertilisers Pty Ltd

ADDRESS OF OCCUPIER:

Level 8, St Georges Square, 225 St Georges Terrace
Perth WA 6000

NAME AND LOCATION OF PREMISES:

Burrup Ammonia Plant (Burrup Fertilisers)
De Witt Location 564, Vol 3125, Folio 243 King Bay-Hearson Cove Industrial Area
Burrup Peninsula WA

Environmental Protection Regulations 1987

CLASSIFICATION(S) OF PREMISES:

Schedule 1, Part 1, Category 31 - Chemical manufacturing
Schedule 1, Part 1, Category 52 - Electric power generation

COMMENCEMENT DATE OF LICENCE: Tuesday, 26 April 2005

EXPIRY DATE OF LICENCE: Thursday, 20 April 2006

CONDITIONS OF LICENCE:

As described and attached:

DEFINITIONS (23)

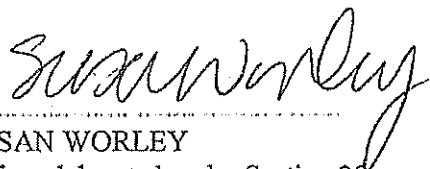
GENERAL CONDITION(S) (3)

WATER POLLUTION CONTROL CONDITION(S) (1)

MARINE POLLUTION CONTROL CONDITION(S) (5)

AIR POLLUTION CONTROL CONDITION(S) (4)

ATTACHMENTS (4)


SUSAN WORLEY

Officer delegated under Section 20
of the *Environmental Protection Act 1986*

Date of Issue: Monday, 25 April 2005

Date of Last Amendment: Monday, 12 December 2005

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LICENCE NUMBER: 7997/1

FILE NUMBER: L12/02

PREAMBLE

The following statements in this provides relevant background information for the Licensee. They should not be regarded as conditions of licence.

Applicability

This Licence is issued to Burrup Fertilisers Pty Ltd, De Witt Location 546, Vol 3125, Folio 234 King Bay-Hearson Cove Industrial Area, Burrup Peninsula (Attachment 1), which is a prescribed premises within Schedule 1 of the *Environmental Protection Regulations 1987*, and includes the following operations:

- use of the existing Dampier Cargo Wharf for an initial shipment of ammonia;
- use of the Bulk Liquids Jetty for export and import of liquid ammonia;
- wastewater collection, treatment and disposal system;
- ammonia plant designed to produce 2,200 tonnes ammonia per day;
- primary and secondary reformers (ammonia production unit);
- captive power plant comprising two 22MW units;
- two package boilers (of 150 tonnes per hour and 50 tonne per hour capacity) supplying medium pressure steam for plant start-up;
- air drying unit and two air compressors;
- catalyst loading and unloading facilities;
- two 40,000 tonne atmospheric pressure, cryogenic ammonia storage tanks, complete with a single flare stack;
- closed circuit seawater-freshwater cooling system;
- two seawater cooling towers;
- demineralisation water plant;
- sulphuric acid and caustic unloading, storage and distribution facilities;
- inert gas generation unit of gaseous nitrogen and on-site storage of liquid nitrogen;
- chlorine dosing facility; and
- one 5 MW emergency diesel generator.

This facility is prescribed within Schedule 1 of the *Environmental Protection Regulations 1987* as outlined in Table 1 below:

TABLE 1: CATEGORIES UNDER WHICH BURRUP FERTILISERS IS PRESCRIBED

<i>Category Number</i>	<i>Category Name</i>	<i>Description</i>
31	Chemical Manufacturing	Other than Cat 32, on which chemical products are manufactured by a chemical process.
52	Electric Power Generation	Other than 53, on which electrical power is generated using a fuel

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Ministerial Conditions

This premises is also subject to Ministerial Statement 586 set by the Minister for the Environment under Part IV of the *Environmental Protection Act 1986* on 20 February 2002. The Licensee is required to comply with the requirements of the Minister's conditions as well as those in this Licence

Non-Standard Operations

The Licensee should inform the Director, at least 24 hours prior to the commencement of any planned non-standard operation that may have the potential to cause pollution

Emergency, Accident or Malfunction

The licensee should inform the Director during office hours or the Department of Environment out-of-hours number as soon as is practicably possible of the identification of any discharge of waste which has occurred as a result of an emergency, accident or malfunction, or extreme weather conditions, otherwise than in accordance with any condition of this Licence and has caused or is likely to cause pollution.

Alteration to Premises

Prior to making any significant alterations to the premises which may affect the air, water or noise emissions from the premises the Licensee must submit a proposal to the Director accompanied by supporting information and plans which allow the environmental impact of that change to be assessed.

General requirements

The licensee should be aware that these conditions do not exempt the Premises/Licensee from other statutory obligations under the *Environmental Protection Act 1986*, or any other Acts or regulations. This includes:

- *Environmental Protection Regulations 1997*,
- *Environmental Protection (Noise) Regulations 1997*;
- *Environmental Protection (Unauthorised Discharges) Regulations 2004*,
- *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*; and
- *Environmental Protection (Controlled Waste) Regulations 2004*.

CONDITIONS OF LICENCE

DEFINITIONS

In these Conditions of Licence, unless inconsistent with the text or subject matter:

"Annually" means a 12 calendar month period, commencing on the Licence issue date;

"Annual Report" means the report produced annually by the Licensee in accordance with Conditions G1(a) and G1(b);

"Approved" means approval in writing;

"Burrup Fertilisers" means Burrup Fertilisers Pty Ltd;

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"Brine Return Line" means the desalination plant brine return pipeline operated by the Water Corporation;

"CFU" means Colony Forming Unit;

"Director" means Director, Environmental Management Division, or other delegated officer, of the Department of Environment for and on behalf of the Chief Executive Officer as delegated under Section 20 of the *Environmental Protection Act 1986*;

"Director" for the purpose of notifications and correspondence means:

Manager, North West Region
Department of Environment
PO Box 836
KARRATHA WA 6714

Telephone: (08) 9144 2000
Facsimile: (08) 9278 0786;

"Emergency Flaring" means flaring for in excess of 5 minutes undertaken to correct a process abnormality;

"g/m³" means grams per cubic metre, expressed at 0 degrees Celsius and 1.0 atmosphere pressure (101.325 kilopascals);

"g/s" means grams per second;

"kg/a" means kilograms per annum;

"kg/day" means kilograms per day;

"M4" means the wastewater sampling point prior to wastewater entering the Water Corporation's Brine Return Line;

"MDEA" means methyldiethanolamine;

"mg/m³" means milligrams per cubic metre;

"m/s" means metres per second;

"µg/L" means microgram per litre;

"NO_x concentration" means the total combined concentration of nitric oxide and nitrogen dioxide, expressed as nitrogen dioxide, dry, at 0 degrees Celsius and 1.0 atmosphere pressure (101.325 kilopascals);

"non-conformance" means failure to conform with licence conditions;

"Quarterly" means undertaking sampling every 3 months within this current licence period;

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"Reporting Period" means the period 1 April to 31 March immediately before the Annual Report is due in each year in accordance with condition G1(b); and

"TRH" means Total Recoverable Hydrocarbons.

Other terms take their meaning as defined in the *Environmental Protection Act 1986*

GENERAL CONDITIONS

ANNUAL REPORT

- G1(a) The Licensee shall provide to the Director, an annual report which sets out in respect of each Reporting Period:
- (i) the groundwater monitoring results pursuant to condition W1(a);
 - (ii) the wastewater data averaged on a monthly basis pursuant to conditions M2(b) and M3(a);
 - (iii) monitoring results for stormwater discharge pursuant to condition M5(b);
 - (iv) stack monitoring results pursuant to condition A4(a) and A4(b);
 - (v) a summary of incident reports of emergency flaring for the plant pursuant to condition A4(c); and
 - (vi) any non-conformances that occur in the Reporting Period.
- G1(b) The Licensee shall provide an Annual Report to the Director by the 31 March 2006

DISCHARGES IN EXCESS OF LIMIT

- G2(a) The Licensee shall provide a non-conformance report to the Director where any monitoring results are in excess of the limits specified in any condition of this Licence within seven usual business days of that non-conformance becoming known. The non-conformance report shall contain:
- (i) the amount by which the limit was exceeded, supported by relevant monitoring data;
 - (ii) reasons for the emission levels being in excess of the limits; and
 - (iii) an outline of corrective action taken by the Licensee to ensure that emission levels are maintained below the limits, where applicable.
- G2(b) The Licensee shall provide a brief summary of any non-conformance with Licence conditions, occurring during the Reporting Period, in the Annual Report.

QUALITY ASSURANCE PROGRAM

- G3 The Licensee shall provide to the Director by the 31 March 2006, a procedure which describes in detail the sampling methodology, calibration, instrumentation and calculation procedures implemented to satisfy any monitoring requirement contained in the conditions of this Licence.

GROUNDWATER PROTECTION CONDITIONS

GROUNDWATER MONITORING PROGRAM

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- W1(a) The Licensee shall undertake quarterly monitoring from each of the groundwater monitoring bores detailed in Table 2, column 1 (as shown in Attachment 2), for all of the parameters specified in Table 2, column 2. The Licensee shall include a summary of the groundwater monitoring results collected during each Reporting Period in the Annual Report.

TABLE 2: GROUNDWATER MONITORING PROGRAM

Monitoring Bore	Parameters to be measured
BFA	Standing Water Level (SWL)
BFB	Electrical conductivity @ 25° C
BFC	pH
BFD	Total Dissolved Solids (TDS)
BFE	Sulphate
BFF	Arsenic
	Cadmium
	Chromium
	Copper
	Mercury
	Nickel
	Lead
	Zinc
	Selenium
	TRH C6-C9,C15-C28,C29-C36
	MDEA
	Ammonia

- W1(b) The Licensee shall take, preserve, transport and have analysed (where appropriate) all water samples, required by conditions of this Licence, in accordance with Australian Standard 5667.1:1998 and also in accordance with supplementary standards recommended by Australian Standard 5667.1:1998 for taking samples in different situations

MARINE POLLUTION CONTROL CONDITIONS

BRINE RETURN LINE DISCHARGES

- M1(a) The Licensee shall ensure that wastewater from the following point sources is processed via the wastewater collection, treatment and disposal system and monitored in accordance with Condition M3(a) prior to discharge to the Brine Return Line :
- (i) all hydrocarbon collection sumps as identified in Attachment 3;
 - (ii) all septic tank facilities as identified in Attachment 3;
 - (iii) collected acidic and alkaline waste water directed to the neutralisation pit;
 - (iv) neutralised demineralised reagent water;
 - (v) reformer jacket water blowdown;

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- (vi) process condensate; and
- (vii) reformer steamer drum boiler blowdown.

M1(b) The Licensee shall ensure that water from package boiler blowdown and cooling tower blowdown is discharged to the Brine Return Line through monitoring point M4.

M1(c) The Licensee shall notify the Director of any intention to discharge wastewater into the Brine Return Line other than any of the wastewater identified in part (a) or (b) of this Condition

MONITORING PROGRAM FOR DISCHARGE VIA THE BRINE RETURN LINE

M2(a) The Licensee shall continuously monitor the effluent stream from sampling point M4 (Attachment 3). The parameters monitored are to include: flow rate and accumulated flow; temperature; conductivity; oxidation-reduction potential; and total suspended solids.

M2(b) The Licensee shall ensure that the continuous data collected as per condition M2(a) during each Reporting Period is averaged on a monthly basis and reported in the Annual Report.

DISCHARGE CRITERIA MONITORING

M3(a) The Licensee shall undertake representative monitoring of the parameters set out in Table 3 (Brine Return Line Discharge Criteria) column 1, at monitoring point M4 (as shown in Attachment 3).

M3(b) The Licensee shall provide a report detailing Burrup Fertilisers' ability to meet the required discharge criteria (Table 3, column 2) and annual loading limits (Table 3, column 3), including sampling and recording procedures to the Director by 31 March 2006.

M3(c) The Licensee shall ensure that the parameters detailed in Table 3, column 1, discharged after the 31 March 2006 shall not exceed the limits specified in Table 3, columns 2 and 3.

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TABLE 3: BRINE RETURN LINE DISCHARGE CRITERIA

Parameter	Licence discharge criteria	Annual loading limit
Ammoniacal Nitrogen	<250µg/L	30kg/a
Total Phosphorus	Not Applicable	150kg/a
Total Nitrogen	Not Applicable	100kg/a
Methanol	13µg/L	15kg/a
Dissolved oxygen	Greater than 90% saturation	
PH	Within 0.2 of ambient pH (~8.2)	
Temperature	Within 2 degrees celcius of the ambient and never to exceed 5°C above the 24 hour average ambient sea water temperature	
Enterococci	95 percentile not greater than 200 enterococci/100ml based on 10 samples over a 6 month period	
Thermotolerant coliforms	Median not greater than 14 CFU/100ml with no more than 10% of samples exceeding 21 CFU/100ml	
Cadmium	0.7µg/L	
Chromium	7.7 µg/L	
Copper	0.3 µg/L	
Iron	2.2µg/L	
Lead	2.2µg/L	
Mercury	0.1µg/L	
Nickel	7µg/L	
Zinc	7µg/L	

MONITORING PROGRAM FOR EMERGENCY MARINE DISCHARGES

M4 The Licensee shall conduct the following monitoring program in the event of an unplanned or emergency upset condition likely to have caused or to cause the quality of wastewater to be discharged via the Brine Return Line to exceed the criteria set out in Table 3 (column 2) and report as per condition G2(a):

- (i) take representative samples of the discharge;
- (ii) analyse for the parameters specified in Table 3; and
- (iii) maintain records of the duration of the wastewater emergency discharge via the Brine Return Line

STORMWATER DISCHARGE

M5(a) The Licensee shall monitor the sedimentation basin stormwater at the monitoring locations specified in Table 4 (Stormwater Discharge Monitoring), column 1, prior to discharge to the tidal flats, for the parameters listed in Table 4, column 2

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TABLE 4: STORMWATER DISCHARGE MONITORING

Monitoring point	Parameter
Western sedimentation basin	total suspended solids, total petroleum hydrocarbons and pH
Eastern sedimentation basin	

- M5(b) The Licensee shall present results of the monitoring undertaken in accordance with Condition M5(a) in the Annual Report.

AIR POLLUTION CONTROL CONDITIONS

EMISSIONS MONITORING REQUIREMENTS

- A1(a) The Licensee shall ensure that waste gases emitted to the environment through the following emission points (see Attachment 4) are monitored:
- (i) primary reformer;
 - (ii) package boiler;
 - (iii) start up heater;
 - (iv) carbon dioxide stripper;
 - (v) vents A and B; and
 - (vi) flare stack.
- A1(b) The Licensee shall report the following parameters when determining, for the purpose of any condition of this Licence, the quantity and/or nature of waste gases discharged:
- (i) density at exit temperature;
 - (ii) moisture content;
 - (iii) total volume flow rate at exit temperature;
 - (iv) exit temperature; and
 - (v) production rate through the relevant item of equipment from which the discharge originates, percent of maximum capacity and other notable operational circumstances likely to affect discharges from the associated item.
- A1(c) The Licensee shall utilise empirical methodologies, as specified in the Quality Assurance Program, required by condition G3, where direct sampling of any air emissions from the emission points referred to in part (a) of this condition are impractical.
- A1(d) Where continuous gaseous emission analysers are required by conditions of this Licence, the Licensee shall ensure that reliable emissions monitoring data is obtained and recorded for:
- (i) greater than 90 percent of the manufacturing plant's stable operating time in every calendar month period; and
 - (ii) greater than 95 percent of the manufacturing plant's stable operating time in any 12 consecutive calendar months.

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A1(e) The Licensee shall conduct periodic stack testing as required by conditions of this Licence, which shall only be carried out after at least a 10 day continuous operating period.

A1(f) The Licensee shall notify the Director when circumstances occur where a gaseous emission test cannot be conducted, and as such an alternative time for testing shall be agreed between the Licensee and the Director.

AIR QUALITY DISCHARGE CRITERIA

A2(a) The Licensee shall ensure that emissions during normal operating conditions from the discharge points set out in Table 5, column 1 do not exceed the air emissions limits detailed in Table 5, columns 2, 3, 4 and 5:

TABLE 5: DISCHARGE CRITERIA UNDER NORMAL OPERATIONS

Discharge point	NO _x as NO ₂	SO ₂	CO	Particulates
	mg/m ³	mg/m ³	mg/m ³	mg/m ³
Primary reformer	205	N/A	42	4
Package Boiler	210	4	42	5

A2(b) The Licensee shall ensure that emissions during start up/upset conditions from the discharge points set out in Table 6, column 1, do not exceed the air emission limits detailed in Table 6, columns 2, 3 and 4:

TABLE 6: DISCHARGE CRITERIA UNDER STARTUP/UPSET CONDITIONS

Discharge point	NO _x as NO ₂	SO ₂	Particulates
	mg/m ³	Mg/m ³	mg/m ³
Package boiler	210	4	5
Startup heater	210	4	5

Notes:

1. Gas volumes shall be expressed at 0 degrees Celsius and 1.0 atmosphere pressure (101.325 kilopascals).
2. Nitrogen oxides calculated as NO₂, at a 7% oxygen reference level for process furnaces and at a 15% oxygen reference level for gas turbines

WASTE GAS STACK MONITORING REQUIREMENTS

A3(a) The Licensee shall analyse using the relevant USEPA standard, grab samples from the stack sampling ports detailed in Table 7, column 1, for the purpose of measuring gaseous emission concentrations for the parameters listed in Table 7, column 2.

A3(b) The Licensee shall, for the purposes of Condition A3(a) and as far as reasonably practicable, schedule monitoring such that the number of sampling points monitored per quarterly period is maximised

WESTERN AUSTRALIA
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TABLE 7: WASTE GAS STACK MONITORING PARAMETERS

Emission source	Parameters	Frequency
<ul style="list-style-type: none">• Primary Reformer; and• Package boiler	Oxides of nitrogen (NO _x) ²	Quarterly
	Particulates	
	Volatile organic compounds	
	Oxides of sulphur (SO _x)	

Notes: 1. Gas volumes shall be expressed at 0 degrees Celsius and 1.0 atmosphere pressure (101.325 kilopascals)
2. Nitrogen oxides calculated as NO₂, at a 7% oxygen reference level for process furnaces and at a 15% oxygen reference level for gas turbines

AIR QUALITY REPORTING

- A4(a) The Licensee shall report monitoring results as specified in condition A1 for each Reporting Period to the Director in the Annual Report.
- A4(b) The Licensee shall report monitoring results specified in condition A3 to the Director quarterly and summarise the results in the Annual Report.
- A4(c) The Licensee shall report to the Director when any Emergency Flaring or venting for upset conditions occurs. The report shall include but not be limited to the following:
- (i) information as to why the flaring/venting was undertaken;
 - (ii) duration of flaring/venting period;
 - (iii) type of gas/product flared/vented; and
 - (iv) any emissions of dark smoke and duration of the emergency flaring or venting.
- A4(d) The Licensee shall provide a summary all the emergency flaring and venting incidents in the Annual Report.

WESTERN AUSTRALIA
DEPARTMENT OF ENVIRONMENT

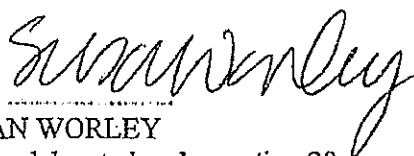
Environmental Protection Act 1986

LICENCE NUMBER: 7997/1

FILE NUMBER: L12/02

SEVERANCE

It is the intent of these Licence conditions that they shall operate so that, if a condition or a part of a condition is beyond my power to impose, or is otherwise *ultra vires* or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within my power to impose and are not otherwise *ultra vires* or invalid.



SUSAN WORLEY
Officer delegated under section 20
Of the *Environmental Protection Act 1986*

Date of Issue: Monday, 25 April 2005

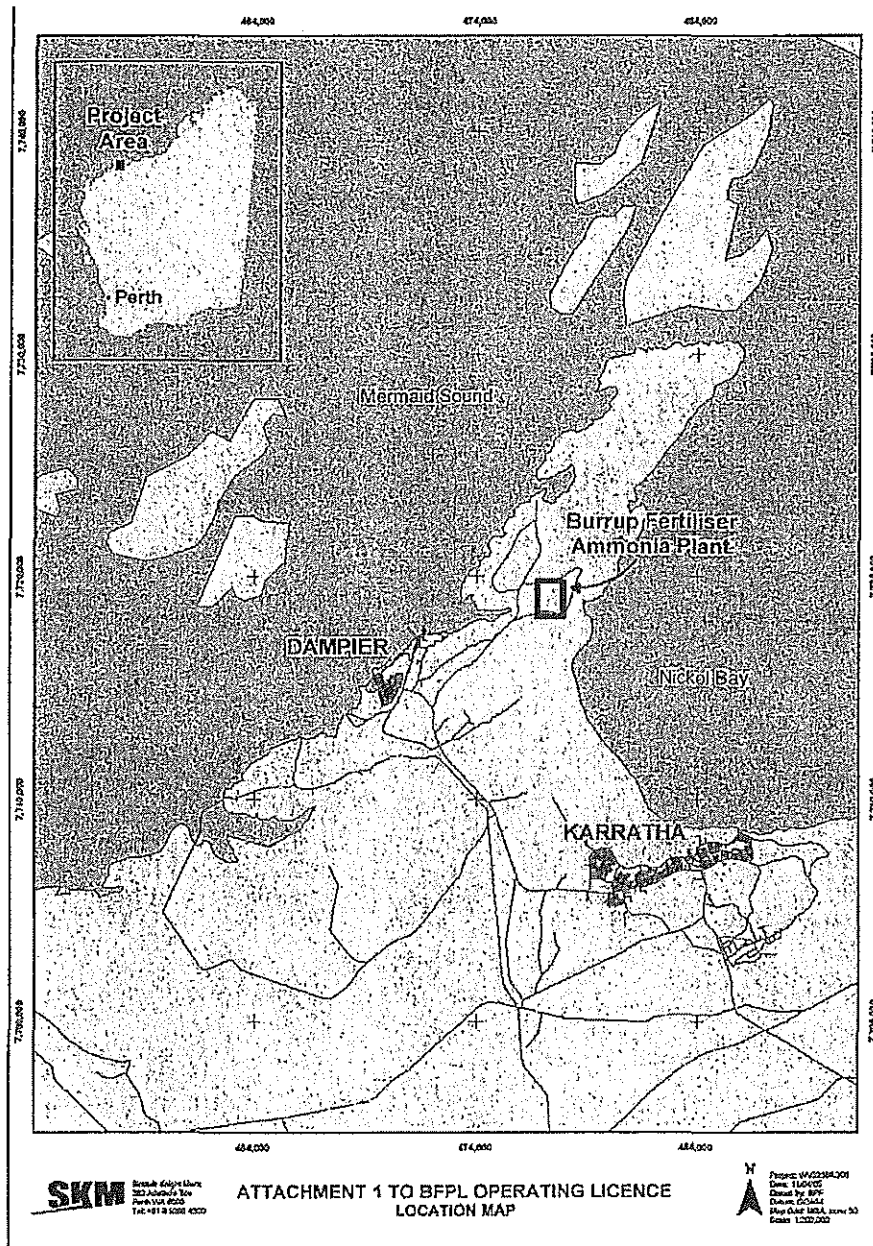
Date of Last Amendment: Monday, 12 December 2005

WESTERN AUSTRALIA
DEPARTMENT OF ENVIRONMENT
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FILE NUMBER: L12/02

Attachment 1 – Location Map



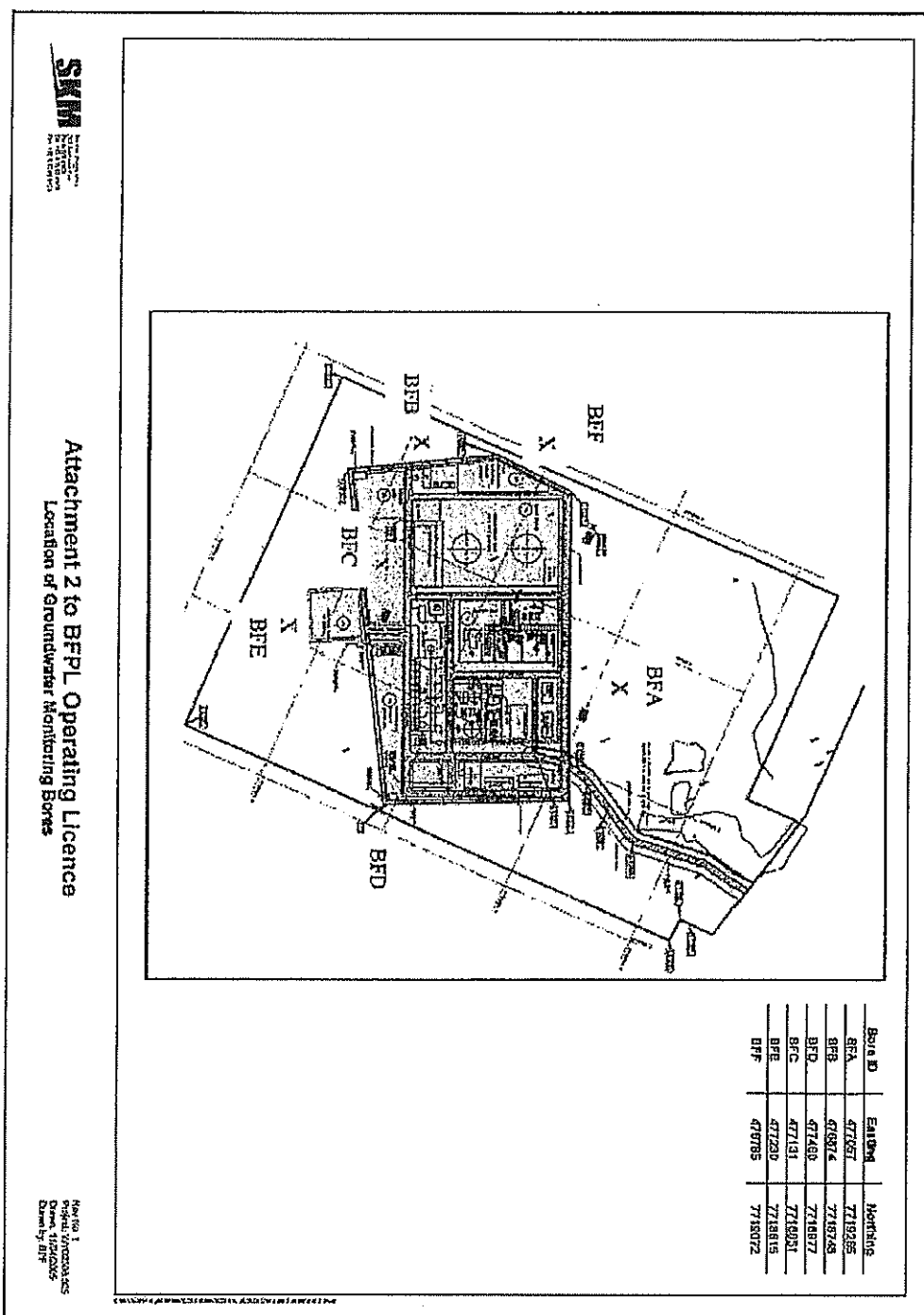
WESTERN AUSTRALIA
DEPARTMENT OF ENVIRONMENT

Environmental Protection Act 1986

LICENCE NUMBER: 7997/1

FILE NUMBER: L12/02

Attachment 2 – Location of Groundwater Monitoring Bores





Government of Western Australia
Department of Environment and Conservation

Your Ref: L7997/2002/9
File No: NWK2095-08
Enquiries: Fiona Esszig
Phone: 9182 2036
Fax: 9144 1118
Email: Fiona.Esszig@dec.wa.gov.au

The Manager
Yara Pilbara Fertilisers Pty Ltd
PO Box 304
DAMPIER WA 6713

Dear Sir/Madam

Environmental Protection Act 1986
Licence L7997/2002/9
Occupier: Yara Pilbara Fertilisers Pty Ltd
Premises: Yara Pilbara Fertilisers

You are hereby advised that a licence under the *Environmental Protection Act 1986* (the Act) has been granted for the above premises. The Department of Environment and Conservation will advertise the issuing of this licence in the public notices section of *The West Australian* newspaper.

The licence is subject to the attached conditions. Under section 58 of the Act, it is an offence to contravene a licence condition. This offence carries a penalty of up to \$125,000, with a daily penalty of up to \$25,000.

In accordance with section 102(1)(c) of the Act, you are afforded 21 days to appeal the conditions of the licence. Under section 102(3)(a) of the Act, any other person may also appeal the conditions of the licence.

To make an appeal or check if any appeals have been made, contact the Office of the Appeals Convenor on 6467 5190. Please direct all other inquiries to the Licensing Officer above.

Yours sincerely,

Officer delegated under Section 20
of the *Environmental Protection Act 1986*

Thursday, 18 April 2013

enc: *Environmental Protection Act 1986* Licence L7997/2002/9
copy to: Local Government Authority: Shire of Roebourne



Government of Western Australia
Department of Environment and Conservation

LICENCE FOR PRESCRIBED PREMISES *Environmental Protection Act 1986*

LICENCE NUMBER: L7997/2002/9

FILE NUMBER NWK2095-08

LICENSEE AND OCCUPIER OF PREMISES

Yara Pilbara Fertilisers Pty Ltd
Level 5, 182 St Georges Tce
PERTH WA 6000
ACN: 095 441 151

NAME AND LOCATION OF PREMISES

Yara Pilbara Fertilisers
Part of Lot 564 on Plan 31023, Village Road
476920E, 7719320N; 476982E, 7718359N; 477030E, 7719261N; 477450E, 7719445N;
477585E, 7719143N; 476976E, 7718789N; 476934E, 7718909N; 476980E, 7718945N and
476911E, 7719069N [MGA 94, Zone 50]
BURRUP WA 6714
(As depicted in Attachment 2)

PRESCRIBED PREMISES CATEGORY

Schedule 1 of the Environmental Protection Regulations 1987

CATEGORY	DESCRIPTION	CAPACITY
31	Chemical manufacturing	770,000 tonnes per year
85	Sewage facility	36 cubic metres per day

CONDITIONS OF LICENCE

Subject to the conditions of licence set out in the attached pages.

Officer delegated under Section 20
of the *Environmental Protection Act 1986*

ISSUE DATE Thursday, 18 April 2013

COMMENCEMENT DATE: Sunday, 21 April 2013

EXPIRY DATE: Sunday, 20 April 2014

Page 1 of 19

CONDITIONS OF LICENCE

Environmental Protection Act 1986

LICENCE NUMBER L7997/2002/9

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DEFINITIONS

In these conditions, unless inconsistent with the text or subject matter:

"APHA-AWWA-WEF" means American Public Health Association, American Water Works Association, Water Environment Federation;

"AS 1940" means the most recent version of the Australian Standard for The storage and handling of flammable and combustible liquids;

"AS 4323.1" means the current version of Australian Standard 4323.1 Stationary source emissions – Selection of sampling positions;

"AS/NZS 5667" means the most recent version and relevant parts of Australian Standard 5667;

"BOD₅" means Biochemical Oxygen Demand expressed in milligrams of oxygen consumed per litre of sample during 5 days of incubation at 20 °C;

"CEMS" means continuous emissions monitoring system;

"cfu/100mL" means colony forming units per 100mL;

"CO" means carbon monoxide;

"Director" means Director, Environmental Regulation Division of the Department of Environment and Conservation for and on behalf of the Chief Executive Officer as delegated under Section 20 of the *Environmental Protection Act 1986*;

"Director" for the purpose of correspondence means:

Regional Leader – Industry Regulation

Pilbara Region

Department of Environment and Conservation

PO Box 835

KARRATHA WA 6714

Telephone: (08) 9182 2000

Facsimile: (08) 9144 1118;

"extreme rainfall event" means a 1 in 100 year, 72 hour duration rainfall event;

"g/s" means grams per second as the mass emission rate in exhaust stack gases and effluents;

"kg/day" means kilograms per day;

"NATA" means National Association of Testing Authorities;

"NO_x" means oxides of nitrogen which includes nitric oxides (NO) and nitrogen oxide (NO₂), all NO_x emissions shall be reported as equivalent nitrogen dioxide (NO₂);

"mg/L" means milligrams per litre;

"mg/m³" means the concentration of the specified contaminant in milligrams (10⁻³g) per cubic metre and unless otherwise specified means corrected to dry gas (eliminating any volume contribution from water vapour or droplets) and corrected to STP and at the oxygen reference level specified;

CONDITIONS OF LICENCE

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"Operations Water Quality Monitoring Procedure" means the *Operations Water Quality Monitoring Procedure* (200-200-PRO-BFP-0004), Burrup Fertilisers Pty Ltd, 8 September 2008;

"PM₁₀" means particulate matter with an equivalent aerodynamic diameter of less than or equal to 10 microns;

"Standard Methods for Examination of Water and Wastewater-APHA-AWWA-WEF" means the best current practice of American water analysts developed by the American Public Health Association (APHA), the American Water Works Association (AWWA), and the Water Environment Federation (WEF);

"SO_x" means all oxides of sulfur (predominantly SO₂ and to a lesser degree SO₃) formed during any combustion process and reported as sulfur dioxide (SO₂) and at the oxygen reference level specified;

"STP" means standard temperature and pressure which is a temperature of 0°C and an absolute pressure of 101.325 kilopascals;

"µg/L" means micrograms per litre;

"USEPA Method" means the corresponding standard monitoring method as promulgated by the United States Environmental Protection Agency; and

"%v/v" means the volume of gas being reported (the analyte) per total volume of gas being analysed and expressed as a percentage.

CONDITIONS

STORMWATER MANAGEMENT

1. The licensee shall maintain sedimentation basins or other effective measures to ensure that stormwater is retained on the premises.
2. The licensee shall ensure that the sedimentation basins referred to in condition 1 of this licence are maintained with a minimum top of embankment freeboard of 300 millimetres to allow for extreme rainfall events.
3. The licensee shall take representative samples of water from the Western Sedimentation Basin and Eastern Sedimentation Basin and have them analysed for the parameters listed in Column 1, Table 1 at the frequency listed in Column 3, Table 1.

Table 1: Sedimentation basin discharge monitoring.

Column 1 Parameter	Column 2 Limit	Column 3 Frequency
Total Suspended Solids (TSS)	80 mg/L	Prior to discharge to the tidal flats and weekly during any discharge of more than 24 hours duration from the outlet pipes of the Western and Eastern Sedimentation Basins, as noted in Attachment 5.
pH	6 – 9	
Total Petroleum Hydrocarbons (TPH)	15 mg/L	
Activated methyl diethanolamine (aMDEA)	0 mg/L	

CONDITIONS OF LICENCE

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4. The licensee shall, in the Annual Environmental Report required by condition 45 of this licence, provide the results of the monitoring required by condition 3 and an analysis of any results that have exceeded the target levels specified in Column 2 of Table 1 for the parameters listed in Column 1 of Table 1 including proposed management measures that will ensure that discharge water quality is improved to meet the target levels.

SEWAGE TREATMENT PLANT

5. The licensee shall operate and maintain effluent volume monitoring equipment that accurately monitors the cumulative volume of effluent discharged from the sewage treatment plant.
6. The licensee shall record the cumulative volume of all effluent discharged from the sewage treatment plant, and provide this in the Annual Environmental Report required by condition 45 in tabular form.
7. The licensee shall collect and have analysed, representative water samples from the sewage treatment plant prior to discharge to the two filtration beds for the parameters listed in Column 1 of Table 2 at the frequency specified in Column 2 of Table 2.

Table 2: Water quality monitoring parameters and frequency.

Column 1	Column 2
Parameter	Frequency
BOD ₅	Monthly
Total Suspended Solids	
pH	
Total Nitrogen	
Total Phosphorus	
<i>E. coli</i>	

8. The licensee shall compare the results of the water quality monitoring required by condition 7 of this licence, to the targets stated in Column 2 of Table 3, for the parameters in Column 1 of Table 3.

Table 3: Effluent quality criteria.

Column 1	Column 2
Parameter	Target Level
Total Nitrogen (mg/L)	25
Total Phosphorus (mg/L)	5
BOD ₅ (mg/L) *	20
pH	6.5 – 8.5
Total Suspended Solids (mg/L) *	30
<i>E. coli</i> (cfu/100mL)	10,000

9. The licensee shall, in the Annual Environmental Report required by condition 45 of this licence, provide the results of the monitoring required by condition 7 and an analysis of any results that have exceeded the target levels specified in Column 2 of Table 3 for the parameters listed in Column 1 of Table 3 including proposed management measures that will ensure that discharge water quality is improved to meet the target levels.
10. The licensee shall manage the wastewater filtration beds in a manner such that:

CONDITIONS OF LICENCE

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- (i) uncontaminated stormwater runoff resulting from roof and site drainage shall not enter the filtration beds;
- (ii) the filtration beds maintain a minimum top of embankment freeboard of 300 millimetres to allow for extreme rainfall events; and
- (iii) growth of vegetation (emergent or otherwise) inside the filtration beds or on the inner filtration bed embankments is minimised.

AIR QUALITY

CONTINUOUS MONITORING REQUIREMENTS

11. The licensee shall ensure that reliable emissions monitoring data is obtained from CEMS devices and recorded for:
 - (i) greater than 90 percent of the manufacturing plant's stable operating time in every calendar month period; and
 - (ii) greater than 95 percent of the manufacturing plant's stable operating time in any calendar year.
12. The licensee shall ensure that each CEMS required by condition 11 of this licence measures the parameter shown in Column 1 of Table 4 and is recorded in the units as shown in Column 2 of Table 4 as averaged over the time period and sampling regime as shown in Column 3 of Table 4 at the emissions sources listed in Column 4 of Table 4.

Table 4: Continuous emission monitoring criteria.

Column 1	Column 2	Column 3	Column 4
Parameter	Units	Averaging Period and Sampling Regime	Emission Source
Nitrogen Dioxide, Sulphur Dioxide, Carbon Monoxide, Particulates (measured as PM ₁₀), Carbon Dioxide and Volatile Organic Compounds	g/s and mg/m ³ @ 7% O ₂	60 minute average, starting the 1 st minute of each clock hour with a minimum of 4 readings per hour in each successive 15-minute period.	Primary Reformer, (Attachment 3).
	g/s and mg/m ³ @ 15% O ₂	60 minute average, starting the 1 st minute of each clock hour with a minimum of 4 readings per hour in each successive 15-minute period.	Package Boilers, and CO ₂ Stripper (Attachment 3).

13. The licensee shall ensure that all CEMS are regularly maintained and calibrated in accordance with manufacturer's instructions to achieve and maintain the accuracy ascribed to the CEMS by the manufacturer and to ensure the ongoing accurate measurement of the parameters listed in Column 1 of Table 4.

ANNUAL STACK SAMPLING

14. The licensee shall ensure that all existing air emission sampling points on the emission sources listed in Column 1, Table 5 are maintained in accordance with AS 4323.1.
15. The licensee shall arrange stack tests for the exhaust gases from the emission sources listed in Column 1, Table 5 for each of the parameters as stated in Column 2 of Table 5, at the frequencies stated in Column 3 of Table 5, with the method specified in Column 4 of Table 5 and expressed in the units as stated in Column 5 of Table 5 for the purpose of verifying continuous monitoring results obtained under condition 12.

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Table 5: Stack Sampling Requirements.

Column 1	Column 2	Column 3	Column 4	Column 5
Emission Source	Parameter to be monitored	Monitoring Frequency	Monitoring Method	Units
Package Boiler and CO ₂ Stripper (Attachment 3).	Volumetric Flow Rate	Annually (at least 11 months apart)	USEPA Method 1 or AS4323.1; and USEPA Method 2	m ³ /s corrected to STP
	Moisture Content		USEPA Method 4	%v/v
	NO _x (as NO ₂)		USEPA Method 7E	g/s and mg/m ³ @ 15% O ₂
	SO _x (as SO ₂)		USEPA Method 6C	g/s and mg/m ³ @ 15% O ₂
	CO		USEPA Method 10	g/s and mg/m ³ @ 15% O ₂
	Volatile Organic Compounds (VOCs)		USEPA Method 18	g/s and mg/m ³ @ 15% O ₂
	Particulate Matter (as PM ₁₀)		USEPA Method 201A	g/s and mg/m ³ @ 15% O ₂
Primary Reformer, (Attachment 3).	Volumetric Flow Rate	Annually (at least 11 months apart)	USEPA Method 1 or AS4323.1; and USEPA Method 2	m ³ /s corrected to STP
	Moisture Content		USEPA Method 4	%v/v
	NO _x (as NO ₂)		USEPA Method 7E	g/s and mg/m ³ @ 7% O ₂
	SO _x (as SO ₂)		USEPA Method 6C	g/s and mg/m ³ @ 7% O ₂
	CO		USEPA Method 10	g/s and mg/m ³ @ 7% O ₂
	Volatile Organic Compounds (VOCs)		USEPA Method 18	g/s and mg/m ³ @ 7% O ₂
	Particulate Matter (as PM ₁₀)		USEPA Method 201A	g/s and mg/m ³ @ 7% O ₂

16. The licensee shall conduct annual stack sampling, only after at least a 10 day continuous operating period.
17. The licensee shall measure and record the following parameters during performance of all stack tests as required by condition 15 of this licence:
 - (i) temperature of the exhaust gas in degrees Celsius;
 - (ii) density at exit temperature in kilograms per cubic metre; and
 - (iii) operational performance of the relevant item of equipment from which the discharge originates reported as the percentage of the maximum capacity.
18. The licensee shall ensure that all sampling and analysis for stack tests as required by condition 15 of this licence are conducted by companies and laboratories with current NATA accreditation for the methods and analyses specified.
19. The licensee shall provide a summary of the results of monitoring required by conditions 12 and 15 of this licence in the Annual Environmental Report required by condition 45 of this licence and where applicable show a comparison of results with the Gaseous Emissions loadings specified in Table 1, Schedule 1 of Ministerial Statement 586.

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REPORTING OF NON-STANDARD FLARING OR FLARING

20. The licensee shall notify the Director in writing within 24 hours of any non-standard venting or flaring which occurs for upset conditions.
21. The licensee shall provide the Director a written report within 5 days of the venting or flaring described in condition 20 which includes, but is not limited to the following:
 - (i) Information as to why the flaring/venting was undertaken;
 - (ii) duration of flaring/venting period;
 - (iii) type of gas/product flared/vented;
 - (iv) an estimated volume of gas/product flared/vented;
 - (v) any emissions of dark smoke and duration of the emergency flaring or venting; and
 - (vi) any complaints received in relation to flaring/venting.
22. The licensee shall provide a summary of all flaring and venting events, including non-standard flaring and venting incidents, in a table in the Annual Environmental Report required by condition 45 of this licence. This shall include:
 - (i) information as to why the flaring/venting was undertaken;
 - (ii) the date of the event and duration of flaring/venting period;
 - (iii) type of gas/product flared/vented;
 - (iv) an estimated volume of gas/product flared/vented;
 - (v) any emissions of dark smoke; and
 - (vi) any complaints received in relation to flaring/venting.

GROUNDWATER QUALITY

23. The licensee shall, at the frequency listed in Column 2, Table 6, take representative samples from the groundwater monitoring bores listed in Column 1, Table 6 and have them analysed for the parameters listed in Column 3, Table 6.

Table 6: Groundwater monitoring

Column 1	Column 2	Column 3
Monitoring Bore	Frequency	Parameter
BFB, BFC, BFD, BFE and BFF (Attachment 4).	Quarterly	pH
		Activated methyl diethanolamine (aMDEA)
		Ammonia
		Arsenic (As)
		Cadmium (Cd)
		Chromium(III) (Cr III)
		Chromium (VI) (Cr VI)
		Copper (Cu)
		Electrical conductivity
		Lead (Pb)
		Mercury (Hg)
		Nickel (Ni)
		Selenium (Se)
		Sulphate (SO ₄)
		Total dissolved solids (TDS)
		Total Nitrogen (TN)
		Total petroleum hydrocarbon (TPH)
		Total Phosphorus (TP)
		Zinc (Zn)

CONDITIONS OF LICENCE

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24. The licensee shall compare the results from condition 23 of this licence to the Groundwater Quality Criteria for each bore specified in Appendix 1 of the Operations Water Quality Monitoring Procedure.

BRINE RETURN LINE DISCHARGES

25. The licensee shall ensure that wastewater from the following point sources is processed via the wastewater collection, treatment and disposal system prior to discharge to the Water Corporation's Brine Return shown in Attachment 5:
- (i) collected acidic and alkaline wastewater and treated hydrocarbon contaminated wastewater directed to the neutralisation pit;
 - (ii) neutralised demineralised reagent water;
 - (iii) reformer jacket water blowdown;
 - (iv) process condensate; and
 - (v) reformer steamer drum boiler blowdown.
26. The licensee shall ensure that water from package boiler blowdown and cooling tower blowdown is discharged to the Brine Return Line through monitoring point M4.
27. The licensee shall notify the Director of any intention to discharge wastewater into the Brine Return Line other than any of the wastewater identified in conditions 25 and 26.
28. The licensee shall continuously monitor the effluent stream from sampling point M4 for flow rate, accumulated flow, temperature, conductivity and oxidation-reduction potential.
29. The licensee shall ensure that the continuous data collected as per condition 28 is averaged on a monthly basis and reported to the Director in the Annual Environmental Report required by condition 45.
30. The licensee shall collect and have analysed, representative discharge samples for the location specified in Column 1, Table 7 for the parameters listed in Column 2 of Table 7 at the frequency specified in Column 3 of Table 7.

Table 7: Brine Return Line discharge monitoring.

Column 1	Column 2	Column 3
Wastewater Streams Sampled (Attachment 5)	Parameters Sampled	Frequency
Saline water intake (M1)	Ammonia	Fortnightly
	Methanol	
	Ammoniacal Nitrogen (NH ³ -N)	
	Total Phosphorus (TP)	
	Total Nitrogen (TN)	
	Chloride	
	pH	
	Cadmium (Cd)	
	Chromium III (Cr III)	
	Total Chromium	
	Copper (Cu)	
	Iron (Fe)	
	Lead (Pb)	
	Mercury (Hg)	
	Nickel (Ni)	
	Zinc (Zn)	
	Flow rate	

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Column 1	Column 2	Column 3
Wastewater Streams Sampled (Attachment 5)	Parameters Sampled	Frequency
	Total Suspended Solids (TSS)	
Cooling Tower Blowdown (M2 - including streams from M1 and M5)	Flow rate	Continuously
	Others as required*	
	Ammonia	
Neutralised Demineralisation Regenerant Wastewater, Treated Domestic Wastewater, Treated Oily Wastewater (M3)	Methanol	Weekly
	pH	
	Ammoniacal Nitrogen (NH ³ -N)	
	Total Phosphorus (TP)	
	Total Nitrogen (TN)	
	Methanol	
	Total Suspended Solids (TSS)	
	Total Dissolved Solids (TDS)	
	Flow rate	
	Others as required*	
Combined Wastewater Streams at Water Corporations Brine Return Line (M4)	Ammoniacal Nitrogen (NH ³ -N)	Weekly
	Total Phosphorus (TP)	
	Total Nitrogen (TN)	
	Methanol	
	Ammonia	
	Dissolved Oxygen (DO)	
	pH	
	Enterococci	
	Thermotolerant coliforms	
	Cadmium (Cd)	
	Copper (Cu)	
	Iron (Fe)	
	Lead (Pb)	
	Mercury (Hg)	
	Nickel (Ni)	
	Zinc (Zn)	
	Total Petroleum Hydrocarbons (TPH)	
	Activated methyl diethanolamine (aMDEA)	
Distillate (M14)	Ammoniacal Nitrogen (NH ³ -N)	Fortnightly
	Total Copper (Cu)	
	Iron (Fe)	
	Lead (Pb)	
	Mercury (Hg)	
	Nickel (Ni)	
	Zinc (Zn)	
Brine from Yara's desalination plant, Unit 1 (M6-1(Yarra))	Ammoniacal Nitrogen (NH ³ -N)	Monthly (on alternate months to M6-2(Yarra))
	Total Copper (Cu)	
	Iron (Fe)	
	Lead (Pb)	
	Mercury (Hg)	
	Nickel (Ni)	
Brine from Yara's desalination plant, Unit 2 (M6-2(Yarra))	Zinc (Zn)	Monthly (on alternate months to M6-1(Yarra))
	Ammoniacal Nitrogen (NH ³ -N)	
	Total Copper (Cu)	
	Iron (Fe)	
	Lead (Pb)	

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Column 1	Column 2	Column 3
Wastewater Streams Sampled (Attachment 5)	Parameters Sampled	Frequency
	Mercury (Hg)	
	Nickel (Ni)	
	Zinc (Zn)	

** In the event that routine monitoring at point M4 indicates that excessive concentrations of a parameter not typically measured at points M2, M3 or M5 are being emitted, monitoring for that parameter will be undertaken at M2, M3 and M5 in order to determine the origin of the excess.*

31. The licensee shall provide a summary of the results of monitoring required by condition 30 of this licence in the Annual Environmental Report required by condition 45 of this licence and where applicable show a comparison of results with the Wastewater Discharge loadings specified in Table 1, Schedule 1 of Ministerial Statement 586.

ANTISCALANT AND BIOCIDES

32. The licensee shall, on a daily basis, record the amount of each of the following products: input into the desalination plant in kilograms per day:
- (i) Anti-scalant Belgard EV2050;
 - (ii) Anti-foam Belite M8; and
 - (iii) Hydrochloric acid solution.
33. The licensee shall provide the data required by condition 32 of this licence in the Annual Environmental Report required by condition 45.
34. The licensee shall ensure that the amount of anti-scalant input into the desalination plant does not exceed 100kg/day.

NEUTRALISATION PIT DISCHARGE

35. The licensee shall discharge wastewater from the neutralisation pit in such a way so to ensure that the concentration of ammoniacal nitrogen at the M4 monitoring point (Attachment 5) does not exceed 1,700ug/L.
36. The licensee shall, in the Annual Environmental Report required by condition 45, provide a summary of discharges from the neutralisation pit, including the:
- (i) date the discharge commenced;
 - (ii) date the discharge ceased;
 - (iii) volume of the discharge;
 - (iv) reason the discharge was required; and
 - (v) results of monitoring of the M4 and M3 monitoring locations conducted as per condition 30 for the period of the discharge.

HYDROCARBON AND CHEMICAL STORAGE

37. The licensee shall ensure that all waste lubricants, waste radiator coolants/inhibitors and hydraulic fluids are stored in impermeable holding tanks prior to being recycled or disposed of to a licensed disposal facility.
38. The licensee shall store environmentally hazardous chemicals including, but not limited to, fuel, oil or other hydrocarbons (where the total volume of each substance stored on the premises exceeds 250 litres) within low permeability (1×10^{-9} metres per second or less) compound(s) designed to contain not less than 110% of the volume of the largest storage

CONDITIONS OF LICENCE

Environmental Protection Act 1986

LICENCE NUMBER L7997/2002/9

FILE NUMBER NWK2095-08

vessel or inter-connected system, and at least 25% of the total volume of substances stored in the compound.

39. The licensee shall ensure that the compound(s) described in condition 38 of this licence shall:
- (i) be graded or include a sump to allow recovery of liquid;
 - (ii) be chemically resistant to the substances stored;
 - (iii) include valves, pumps and meters associated with transfer operations wherever practical. Otherwise the equipment shall be adequately protected (eg. bollards) and contained in an area designed to permit recovery of chemicals released following accidents or vandalism;
 - (iv) be designed such that jetting from any storage vessel or fitting will be captured within the bunded area [see for example AS 1940 Section 5.8.3 (h)];
 - (v) be designed such that chemicals which may react dangerously if they come into contact, are in separate bunds in the same compound or in different compounds; and
 - (vi) be controlled such that sufficient capacity of the bund is maintained at all times (eg. regular inspection and pumping of trapped uncontaminated rain water).
40. The licensee shall immediately remove, dispose of or appropriately treat any liquid resulting from spills or leaks of chemicals including fuel, oil or other hydrocarbons, whether inside or outside the low permeability compound(s).

GENERAL CONDITIONS

41. The licensee shall collect and preserve all water samples collected as part of any of the above conditions in accordance with the relevant parts of AS/NZS 5667 and have them analysed in accordance with the current "Standard Methods for Examination of Water and Wastewater-APHA-AWWA-WEF".
42. The licensee shall submit all water samples to a laboratory with current NATA accreditation for the analysis specified.

ODOUR EMISSIONS

43. The licensee shall ensure that odour emissions emitted from the premises do not unreasonably interfere with the health, welfare, convenience, comfort or amenity of any person who is not on the premises.

DISPOSAL OF SOLID WASTE GENERATED

44. The licensee shall ensure that solid waste and putrescible waste generated onsite is to be disposed to an authorised facility.

REPORTING CONDITIONS

ANNUAL ENVIRONMENTAL REPORT

45. The Licensee shall by 31 March each year, provide to the Director an Annual Environmental Report will cover the period beginning 1 January the previous year and ending on 31 December in the following year containing data required by any other condition of this licence including:
- (i) a summary of incidents where wastewater was discharged from the Western and Eastern Sedimentation Basins to the adjacent tidal flats; and
 - (ii) a summary of any complaints received.

CONDITIONS OF LICENCE

Environmental Protection Act 1986

LICENCE NUMBER L7997/2002/9

FILE NUMBER NWK2095-08

ANNUAL AUDIT COMPLIANCE REPORT

46. The licensee shall by 31 March each year, provide to the Director an Annual Audit Compliance Report in the form of Attachment 1 to this licence, signed and certified in the manner required by Section C of the form indicating the extent to which the licensee has complied with the conditions of this licence and any previous licence issued under Part V of the Act for the premises during the period beginning 1 January and ending on 31 December of the following year.

ATTACHMENT 1 – ANNUAL AUDIT COMPLIANCE REPORT

LICENCE NUMBER L7997/2002/9

FILE NUMBER NWK2095-08

SECTION A

LICENCE DETAILS

Licence Number:	Licence File Number:
Company Name:	ABN:
Trading as:	
Reporting period: _____ to _____	

STATEMENT OF COMPLIANCE WITH LICENCE CONDITIONS

1. Were all conditions of licence complied with within the reporting period? (please tick the appropriate box)

Yes ☐ Please proceed to Section C

No ☐ Please proceed to Section B

Each page must be initialed by the person(s) who signs Section C of this annual audit compliance report

INITIAL: _____

ATTACHMENT 1 – ANNUAL AUDIT COMPLIANCE REPORT

LICENCE NUMBER L7997/2002/9

FILE NUMBER NWK2095-08

SECTION B - DETAILS OF NON-COMPLIANCE WITH LICENCE CONDITION.

Please use a separate page for each licence condition that was not complied with.

a) Licence condition not complied with?	
b) Date(s) when the non compliance occurred, if applicable?	
c) Was this non compliance reported to DEC?	
<input type="checkbox"/> Yes <input type="checkbox"/> Reported to DEC verbally Date _____ <input type="checkbox"/> Reported to DEC in writing Date _____	<input type="checkbox"/> No
d) Has DEC taken, or finalised any action in relation to the non compliance?	
e) Summary of particulars of non compliance, and what was the environmental impact?	
f) If relevant, the precise location where the non compliance occurred (attach map or diagram)	
g) Cause of non compliance	
h) Action taken or that will be taken to mitigate any adverse effects of the non compliance	
i) Action taken or that will be taken to prevent recurrence of the non compliance	

Each page must be initialed by the person(s) who signs Section C of this annual audit compliance report
 INITIAL: _____

ATTACHMENT 1 – ANNUAL AUDIT COMPLIANCE REPORT

LICENCE NUMBER L7997/2002/9

FILE NUMBER NWK2095-08

SECTION C - SIGNATURE AND CERTIFICATION

This Annual Audit Compliance Report may only be signed by a person(s) with legal authority to sign it. The ways in which the Annual Audit Compliance Report must be signed and certified, and the people who may sign the statement, are set out below.

Please tick the box next to the category that describes how this Annual Audit Compliance Report is being signed. If you are uncertain about who is entitled to sign or which category to tick, please contact the licensing officer for your premises.

If the licence holder is	The Annual Audit Compliance Report must be signed and certified:
an individual	<input type="checkbox"/> by the individual licence holder, or <input type="checkbox"/> by a person approved in writing by the Chief Executive Officer of the Department of Environment and Conservation to sign on the licensee's behalf.
A firm or other unincorporated company	<input type="checkbox"/> by the principal executive officer of the licensee; or <input type="checkbox"/> by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment and Conservation.
A corporation	<input type="checkbox"/> by affixing the common seal of the licensee in accordance with the Corporations Act 2001; or <input type="checkbox"/> by two directors of the licensee; or <input type="checkbox"/> by a director and a company secretary of the licensee, or <input type="checkbox"/> if the licensee is a proprietary company that has a sole director who is also the sole company secretary – by that director, or <input type="checkbox"/> by the principal executive officer of the licensee; or <input type="checkbox"/> by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment and Conservation.
A public authority (other than a local government)	<input type="checkbox"/> by the principal executive officer of the licensee; or <input type="checkbox"/> by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment and Conservation.
a local government	<input type="checkbox"/> by the chief executive officer of the licensee; or <input type="checkbox"/> by affixing the seal of the local government.

It is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give information on this form that to their knowledge is false or misleading in a material particular. There is a maximum penalty of \$50,000 for an individual or body corporate.

I/We declare that the information in this annual audit compliance report is correct and not false or misleading in a material particular.

SIGNATURE: _____

SIGNATURE: _____

NAME: (printed) _____

NAME: (printed) _____

POSITION: _____

POSITION: _____

DATE: ____/____/____

DATE: ____/____/____

SEAL (If signing under seal

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[illegible]

8884P Antirelines
Dampier and Extensions
Scam Orthomosaic -
Landate 2023



Sept 1, 1913
 (Approved for Release 09-01-2013)

BEARING: Datum 257-0-0 1994

from the patient's perspective, not from
projected. This may not be the most
desirable perspective, but it is the

Prepared by: G-24
Prepared for:
On: 22-Dec-2011 10:20:32 AM

התקנתו של המערכת החדשה והחלפת
המכשירים הקיימים במסגרת התוכנית
היא חלק מהפרוייקט הכללי.



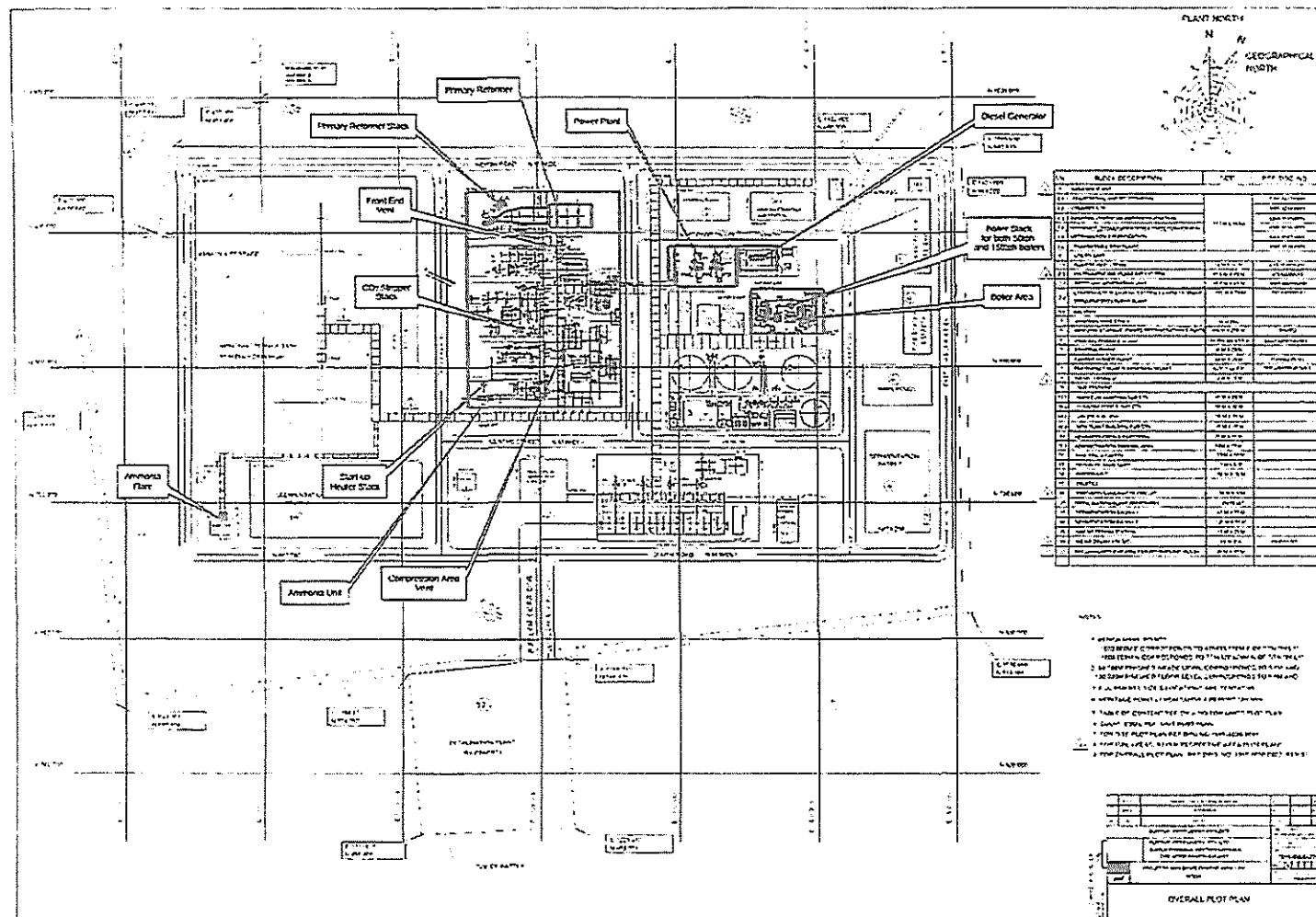
Department of
Environment and Conservation
One Government Centre
665-670-675

ATTACHMENT 3

LICENCE NUMBER L7997/2002/9

FILE NUMBER NWK2095-08

AIR QUALITY MONITORING LOCATIONS

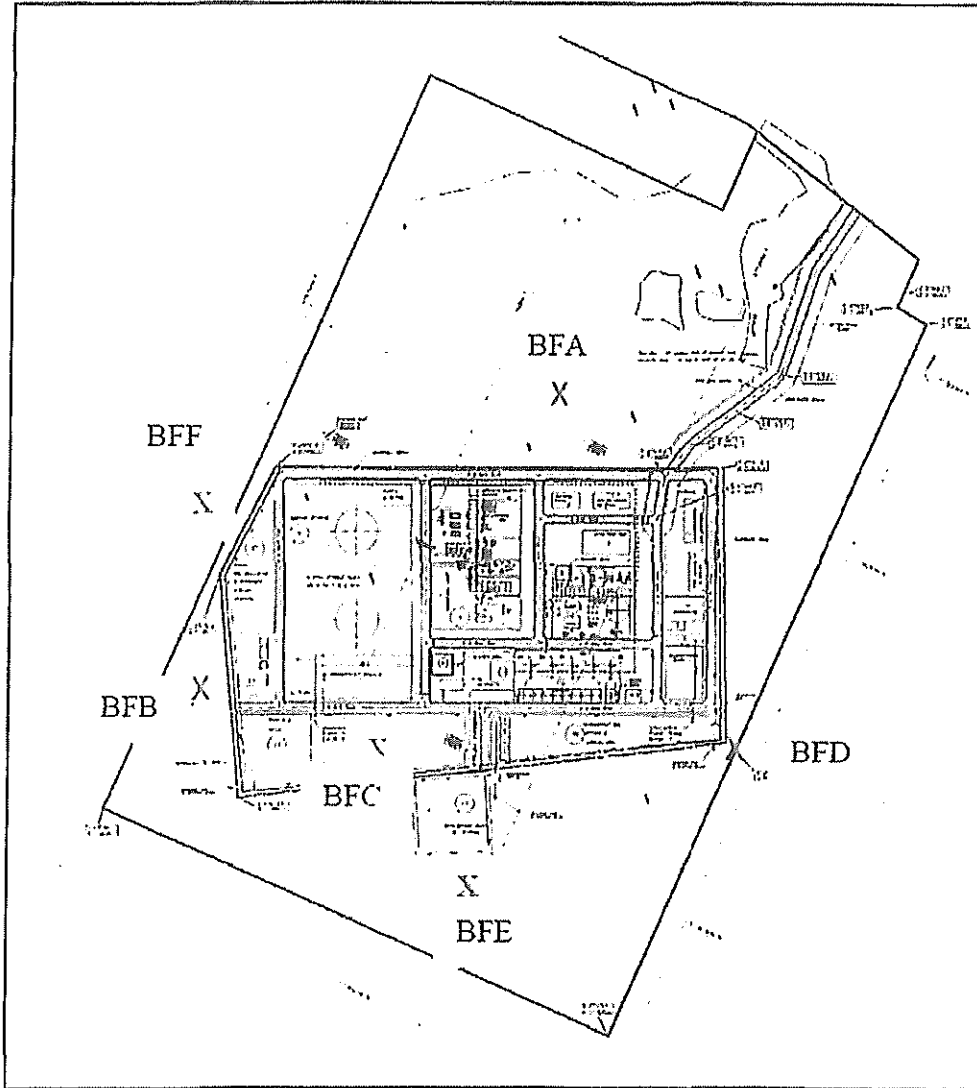


ATTACHMENT 4

LICENCE NUMBER L7997/2002/9

FILE NUMBER NWK2095-08

GROUNDWATER MONITORING BORE LOCATIONS:



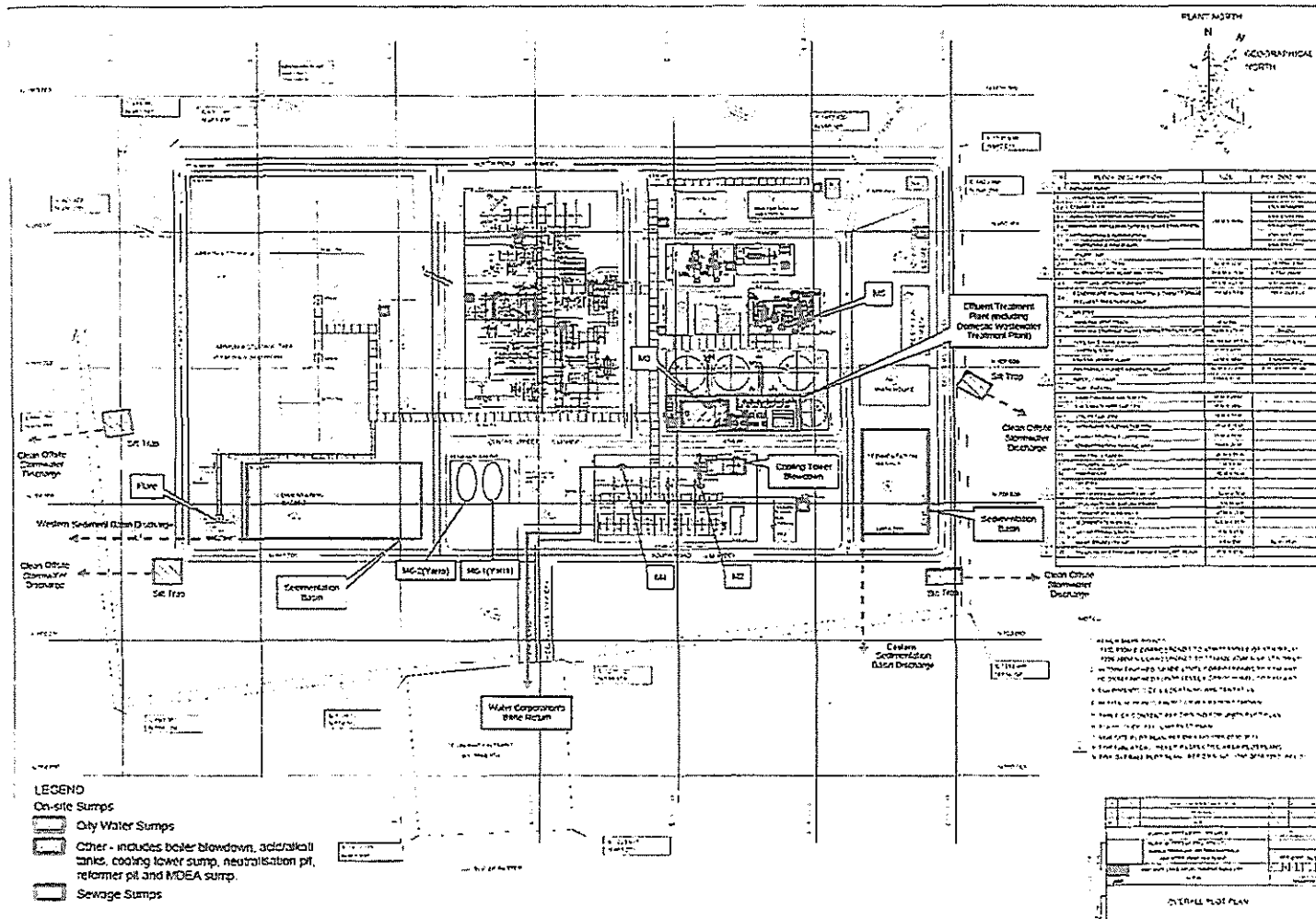
Bore ID	Easting	Northing
BFA	0477057	7719285
BFB	0476874	7718748
BFD	0477460	7718977
BFC	0477131	7718851
BFE	0477230	7718615
BFF	0476785	7719072

ATTACHMENT 5

LICENCE NUMBER L7997/2002/9

FILE NUMBER NWK2095-08

WATER QUALITY MONITORING LOCATIONS:



ISSUE DATE:

Thursday, 18 April 2013

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