

Environment Protection Licence

Licence - 828

Licence Details

Number:	828
Anniversary Date:	01-April

Licensee

ORICA AUSTRALIA PTY LTD
PO BOX 80
MAYFIELD NSW 2304

Premises

ORICA KOORAGANG ISLAND
15 GREENLEAF ROAD
KOORAGANG NSW 2304

Scheduled Activity

Chemical production
Chemical storage
Container reconditioning
Shipping in bulk
Waste processing (non-thermal treatment)

Fee Based Activity

Scale

Ammonium nitrate production	> 100000 T annual production capacity
Chemical production waste generation	> 5-100 T annual volume of waste generated or stored
Chemical storage waste generation	> 100 T annual volume of waste generated or stored
Container reconditioning	Any capacity to recondition, recover, treat or store
Dangerous goods production	> 25000 T annual production capacity
General chemicals storage	> 100000 kL storage capacity
Non-thermal treatment of liquid waste	Any annual processing capacity
Shipping in bulk	> 100000-500000 T of annual capacity to load and unload

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Region
Regional North - Newcastle
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Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act);
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

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The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

ORICA AUSTRALIA PTY LTD
PO BOX 80
MAYFIELD NSW 2304

subject to the conditions which follow.

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1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Chemical production	Ammonium nitrate production	> 100000 T annual production capacity
Chemical production	Chemical production waste generation	> 5 - 100 T annual volume of waste generated or stored
Chemical storage	Chemical storage waste generation	> 100 T annual volume of waste generated or stored
Container reconditioning	Container reconditioning	Any capacity to recondition, recover, treat or store
Chemical production	Dangerous goods production	> 25000 T annual production capacity
Chemical storage	General chemicals storage	> 100000 kL storage capacity
Waste processing (non-thermal treatment)	Non-thermal treatment of liquid waste	Any annual processing capacity
Shipping in bulk	Shipping in bulk	> 100000 - 500000 T of annual capacity to load and unload

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
ORICA KOORAGANG ISLAND
15 GREENLEAF ROAD
KOORAGANG
NSW 2304
LOT 2 DP 234288, LOT 3 DP 234288

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THE PREMISES ALSO INCLUDES THE ANHYDROUS AMMONIA AND NITRIC ACID PIPELINES AT THEIR VARIOUS HEIGHTS/DEPTHS WHICH PASS ACROSS HERON ROAD AND ON THE KOORAGANG NO. 2 BERTH SHOWN AS "ORICA PIPELINE"; AND AREA "D" ON THE REVISED PLAN TITLED "EPA LICENSE NO. 1967 OF KOORAGANG NO. 2" PREPARED BY ADW JOHNSON, VERSION L DATED 17/09/2013, AS PROVIDED TO THE EPA ON 12/11/2013 (EPA REF. DOC13/81911).

Note: The licence only applies to the area marked "D" as shown on the revised plan titled "EPA License No. 1967 of Kooragang No. 2" prepared by ADW Johnson, Version L dated 17/09/2013, provided to the EPA on 12/11/2013 (EPA ref. DOC13/81911), when the licensee has temporary occupation of area "D" for the purpose of ammonia and nitric acid vessel loading and unloading activities.

A3 Other activities

A3.1 This licence applies to all other activities carried on at the premises, including:

Ancillary Activity
Contaminated groundwater treatment
Sewage treatment systems

A4 Information supplied to the EPA

A4.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:

- a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
- b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

P1.1 For the purpose of the monitoring/discharge points tables below the "Environmental Monitoring Points Plan" refers to the plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Points Locations" drawing "10-20000-02", Revision H, dated 19/07/19 (EPA ref. DOC20/20395).

P1.2 The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

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Air

EPA identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
3	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	No. 1 Nitric Acid Plant Stack shown as Monitor Point Identification Number "3" on the Environmental Monitoring Points Plan.
4	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	No. 2 Nitric Acid Plant Stack shown as Monitor Point Identification Number "4" on the Environmental Monitoring Points Plan.
9	Weather monitoring		Wind speed and direction monitor shown as Monitor Point Identification Number "9" on the Environmental Monitoring Points Plan.
16	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	Prill Tower shown as Monitor Point Identification Number "16" on the Environmental Monitoring Points Plan.
17	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	Pre dryer scrubber stack shown as Monitor Point Identification Number "17" on the Environmental Monitoring Points Plan.
18	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	AN1 Dust Collector Exhaust Stack shown as Monitor Point Identification Number "18" on the Environmental Monitoring Points Plan.
19	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	AN2 Washtower Exhaust Stack shown as Monitor Point Identification Number "19" on the Environmental Monitoring Points Plan.
20	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	Ammonia Plant Reformer Stack shown as Monitor Point Identification Number "20" on the Environmental Monitoring Points Plan.
21	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	Boiler Stack shown as Monitor Point Identification Number "21" on the Environmental Monitoring Points Plan.
22	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	No. 3 Nitric Acid Plant Stack shown as Monitor Point Identification Number "22" on the Environmental Monitoring Points Plan.
29	Discharge to Air Air emissions monitoring	Discharge to Air Air emissions monitoring	Ammonia Plant Pre-Reformer Furnace Stack shown as Monitor Point Identification Number "29" on the Environmental Monitoring Points Plan.
34	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	Nitrates Ammonia Flare Vent shown as Monitor Point Identification Number "34" on the Environmental Monitoring Points Plan.
35	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	Ammonia Storage Flare shown as Monitor Point Identification Number "35" on the Environmental Monitoring Points Plan.
36	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	Ammonia Plant Flare shown as Environmental Monitor Point Identification Number "36" on the Environmental Monitoring Points Plan.
37	Discharge to air Air emissions monitoring	Discharge to air Air emissions monitoring	Expansion Project Boiler shown as Monitor Point Identification Number "37" on the Environmental Monitoring Points Plan.

P1.3 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

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P1.4 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

Water and land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
10	Discharge quality monitoring		Stormwater Drain 1 shown as Monitor Point Identification Number "10" on the Environmental Monitoring Points Plan.
11	Discharge quality monitoring		Stormwater Drain 2 shown as Monitor Point Identification Number "11" on the Environmental Monitoring Points Plan.
12	Discharge quality monitoring		Stormwater Drain 3 shown as Monitor Point Identification Number "12" on the Environmental Monitoring Points Plan.
13	Discharge quality monitoring		Stormwater Drain 4 shown as Monitor Point Identification Number "13" on the Environmental Monitoring Points Plan.
14	Discharge quality monitoring		Stormwater Drain 5 shown as Monitor Point Identification Number "14" on the Environmental Monitoring Points Plan.
15	Discharge quality monitoring		Stormwater Drain 6 shown as Monitor Point Identification Number "15" on the Environmental Monitoring Points Plan.
23	Discharge to waters Effluent quality monitoring	Discharge to waters Effluent quality monitoring	Site process effluent discharge to Hunter River shown as Monitor Point Identification Number "23" on the Environmental Monitoring Points Plan.
24	Discharge to waters Effluent volume monitoring		Effluent Diversion Pond volume monitoring, shown as Monitor Point Identification Number "24" on the Environmental Monitoring Points Plan, prior to discharge to Hunter River at Point 23.
30	Discharge to utilisation area Effluent quality and volume monitoring	Discharge to utilisation area Effluent quality and volume monitoring	Sewage effluent from the "Main System Collection Tank", shown on the plan titled "Septic Tanks and Transpiration Areas", drawing "10-00307-14", Revision F, dated 24/4/2002 (EPA ref DOC14/91020), applied to the Main System Transpiration Area.

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31	Soil monitoring		Soil monitoring within the "Main System Transpiration Area" shown on the plan titled "Septic Tanks and Traspiration Areas", drawing "10-00307-14", Revision F, dated 24/4/2002 (EPA ref. DOC14/91020).
32	Groundwater quality monitoring		Groundwater monitoring well shown as Monitor Point Identification Number "32" on the Environmental Monitoring Points Plan.
33	Groundwater quality monitoring		Groundwater monitoring well shown as Monitor Point Identification Number "33" on the Environmental Monitoring Points Plan.
38	Discharge to waters Effluent volume monitoring	Discharge to waters Effluent volume monitoring	Site process effluent volume monitoring, shown as Monitor Point Identification Number "38" on the Environmental Monitoring Points Plan, prior to discharge to Hunter River at Point 23.

3 Limit Conditions

L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Load limits

Note: An assessable pollutant is a pollutant which affects the licence fee payable for the licence.

Note: Nitrogen Oxides means Nitrogen Oxide (NO₂) or Nitric Oxide (NO) or both as NO₂ equivalent.

L2.1 The actual load of an assessable pollutant discharged from the premises during the reporting period must not exceed the load limit specified for the assessable pollutant in the table below.

L2.2 The actual load of an assessable pollutant must be calculated in accordance with the relevant load calculation protocol.

Assessable Pollutant	Load limit (kg)
Coarse Particulates (Air)	137800.00
Fine Particulates (Air)	208110.00
Nitrogen (total) (Estuarine Water)	200000.00

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Nitrogen Oxides (Air)	896450.00
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L3 Concentration limits

L3.1 For each monitoring/discharge point or utilisation area specified in the table\>s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

L3.2 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.

L3.3 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\>s.

L3.4 Air Concentration Limits

POINT 16,17,18

Pollutant	Units of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging period
Total Solid Particles	milligrams per cubic metre	100	Dry, 273K, 101.3kPa		1 Hour

POINT 19

Pollutant	Units of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging period
Total Solid Particles	milligrams per cubic metre	250	Dry, 273K, 101.3kPa		1 Hour

POINT 20

Pollutant	Units of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging period
Nitrogen Oxides	milligrams per cubic metre	350	Dry, 273K, 101.3kPa		1 Hour Block

POINT 21

Pollutant	Units of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging period
Nitrogen Oxides	milligrams per cubic metre	2500	Dry, 273K, 101.3kPa		1 Hour Block

POINT 29

Pollutant	Units of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging period
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Nitrogen Oxides	milligrams per cubic metre	350	Dry, 273K, 101.3kPa	1 Hour Block
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POINT 37

Pollutant	Units of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging period
Nitrogen Oxides	milligrams per cubic metre	350	Dry, 273K, 101.3kPa	3%	1 Hour Block

Note: Nitrogen oxides means nitrogen dioxide (NO₂) or nitric oxide (NO) or both, as NO₂ equivalent.

L3.5 The following air emission concentrations limits apply to all operations, that is start-up, operating mode and shut down, of the nitric acid plants on the premises.

Reference conditions: Dry, 273K, 101.3kPa. Oxygen correction: N/A. Averaging period: 1 Hour Block.

Pollutant	Units of measure	Point	99 percentile concentration limit
Nitrogen oxides	milligrams per cubic metre	3	615
Nitrogen oxides	milligrams per cubic metre	4	575
Nitrogen oxides	milligrams per cubic metre	22	410

Note: Nitrogen oxides means nitrogen dioxide (NO₂) or nitric oxide (NO) or both, as NO₂ equivalent.

Note: Under Part 5, Division 2, Clause 32 and Schedule 3 - Ammonium Nitrate Production of the Protection of the Environment Operations (Clean Air) Regulation 2010:

Nitric Acid Plant 1 (Point 3) belongs to Group 3;

Nitric Acid Plant 2 (Point 4) belongs to Group 4; and

Nitric Acid Plant 3 (Point 22) belongs to Group 5.

L3.6 Water and/or Land Concentration Limits

POINT 23

Pollutant	Units of Measure	50 percentile concentration limit	90 percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
Arsenic	milligrams per litre				0.05
Chromium (hexavalent)	milligrams per litre		0.05		0.20
Nitrogen (total)	milligrams per litre		1500		2000

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Oil and Grease	milligrams per litre	10
pH	pH	6.2 to 9.5
Temperature	degrees Celsius	43
Total suspended solids	milligrams per litre	50
Zinc	milligrams per litre	5.0

L3.7 The limits specified above for pH and temperature are 1-hour average results.

L4 Volume and mass limits

L4.1 For each discharge point or utilisation area specified below (by a point number), the volume/mass of:

- a) liquids discharged to water; or;
- b) solids or liquids applied to the area;

must not exceed the volume/mass limit specified for that discharge point or area.

Point	Unit of Measure	Volume/Mass Limit
24,38	kilolitres per day	4500
30	kilolitres per day	20

L4.2 The cumulative volume for Points 38 and 24 must not exceed 4500 kilolitres per day.

L5 Waste

L5.1 The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled "Waste" and meeting the definition, if any, in the column titled "Description" in the table below.

Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled "Activity" in the table below.

Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled "Other Limits" in the table below.

This condition does not limit any other conditions in this licence.

Code	Waste	Description	Activity	Other Limits
N205	Residues from industrial		Waste processing	Only effluent that

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waste
treatment/disposal
operations

(non-thermal treatment)

is delivered to the
premises by pipe
infrastructure
from the activities
licensed under
Environment
Protection
Licence No.
20909.

L6 Potentially offensive odour

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

L6.1 No condition of this licence identifies a potentially offensive odour for the purposes of Section 129 of the Protection of the Environment Operations Act 1997.

L6.2 The licensee must not cause or permit the emission of offensive odour beyond the boundary of the premises.

4 Operating Conditions

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.

This includes:

- a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
- b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:

- a) must be maintained in a proper and efficient condition; and
- b) must be operated in a proper and efficient manner.

O2.2 The licensee must regularly sweep roads and vehicle manoeuvring areas to remove product spillage from these areas.

O3 Dust

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- O3.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.
- O3.2 All operations and activities occurring at the premises must be carried out in a manner that will minimise the emission of dust from the premises.
- O3.3 Trucks entering and leaving the premises that are carrying loads of dust generating materials must have their loads covered at all times, except during loading and unloading.

O4 Effluent application to land

- O4.1 The quantity of effluent applied to the utilisation area(s) must not exceed the capacity of the utilisation area(s) to effectively utilise the effluent.

For the purpose of this condition, “effectively utilise” includes the ability of the soil to absorb the nutrient, salt and hydraulic loads and the applied organic material without causing harm to the environment.

- O4.2 Effluent application to the utilisation area(s) must not occur in a manner that causes surface run-off from the utilisation area(s).
- O4.3 Irrigation of effluent must not be carried out if soil moisture conditions are such that surface runoff or ponding is likely to occur.
- O4.4 The utilisation areas must be maintained in a proper and efficient condition so as to provide adequate percolation, evaporation and transpiration of the effluent applied.
- O4.5 The volume of effluent directed to the utilisation areas must not exceed the capacity of the respective areas to assimilate the effluent applied.

O5 Emergency response

Note: The licensee must maintain, and implement as necessary, a current Pollution Incident Response Management Plan (PIRMP) for the premises. The PIRMP must be developed in accordance with the requirements in Part 5.7A of the Act and the Regulations made under the Act. The licensee must keep the incident response plan on the premises at all times. The incident response plan must document systems and procedures to deal with all types of incidents (e.g. spills, explosions or fire) that may occur at the premises or that may be associated with activities that occur at the premises and which are likely to cause harm to the environment. The PIRMP must be tested at least annually or following a pollution incident.

O6 Processes and management

- O6.1 All above ground tanks containing material that is likely to cause environmental harm must be bunded or have an alternative spill containment system in place.
- O6.2 Bunds must:
 - a) have walls and floors constructed of impervious materials;
 - b) be of sufficient capacity to contain 110% of the volume of the tank (or 110% volume of the largest tank

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- where a group of tanks are installed);
- c) have floors graded to a collection sump; and
- d) not have a drain valve incorporated in the bund structure, or be constructed and operated in a manner that achieves the same environmental outcome.

O7 Waste management

- O7.1 The licensee must ensure that any liquid and/or non liquid waste generated and/or stored at the premises is assessed and classified in accordance with the EPA's Waste Classification Guidelines as in force from time to time.
- O7.2 The licensee must ensure that waste identified for recycling is stored separately from other waste.
- O7.3 The licensee must ensure that the level of sewage within the AN Despatch Collection Tank is maintained at a level to prevent overflow; and, pumped out by a licensed waste transporter.

O8 Other operating conditions

- O8.1 The licensee must ensure that the entry and exit of vehicles from the premises and the preparation of containers to be taken by road from the premises are conducted in an environmentally satisfactory manner so as to minimise and prevent the pollution of air and water by:
 - (a) Ensuring that vehicles and containers prior to leaving the premises are clean and sealed in a manner that will not cause materials or wastes used in conducting the activities at the premises to be tracked, thrown from, blown, fall, or cast from any vehicle or container onto public roads adjacent to the premises.
 - (b) The licensee must have in place and implement procedures to ensure that vehicles and containers exiting the premises are in a condition to ensure that materials are not tracked, thrown, blown, fall or cast onto public roads adjacent to the premises.

Flare operations

- O8.2 Flares must be operated so that a flame is present at all times when air impurities are potentially required to be treated.

5 Monitoring and Recording Conditions

M1 Monitoring records

- M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.
- M1.2 All records required to be kept by this licence must be:
 - a) in a legible form, or in a form that can readily be reduced to a legible form;
 - b) kept for at least 4 years after the monitoring or event to which they relate took place; and
 - c) produced in a legible form to any authorised officer of the EPA who asks to see them.

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M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:

- a) the date(s) on which the sample was taken;
- b) the time(s) at which the sample was collected;
- c) the point at which the sample was taken; and
- d) the name of the person who collected the sample.

M2 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Air Monitoring Requirements

POINT 3,4,22

Pollutant	Units of measure	Frequency	Sampling Method
Nitrogen Oxides	milligrams per cubic metre	Continuous	CEM-2

POINT 16,17,18

Pollutant	Units of measure	Frequency	Sampling Method
Total Solid Particles	milligrams per cubic metre	Yearly	TM-15

POINT 19

Pollutant	Units of measure	Frequency	Sampling Method
Total Solid Particles	milligrams per cubic metre	Special Frequency 1	TM-15

POINT 20,29

Pollutant	Units of measure	Frequency	Sampling Method
Nitrogen Oxides	milligrams per cubic metre	Yearly	TM-11

POINT 21,37

Pollutant	Units of measure	Frequency	Sampling Method
Nitrogen Oxides	milligrams per cubic metre	Special Frequency 1	TM-11

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POINT 34,35,36

Pollutant	Units of measure	Frequency	Sampling Method
Volumetric flowrate	cubic metres per second	Continuous	CEM-6

Note: For the purpose of the table(s) above Special Frequency 1 means the collection of a sample annually if the item of plant or equipment operates within any annual return reporting period.

M2.3 Water and/ or Land Monitoring Requirements**POINT 10,11,12,13,14,15**

Pollutant	Units of measure	Frequency	Sampling Method
Ammonia	milligrams per litre	Monthly during discharge	Grab sample
Arsenic	milligrams per litre	Monthly during discharge	Grab sample
Chromium (hexavalent)	milligrams per litre	Monthly during discharge	Grab sample
Nitrate	milligrams per litre	Monthly during discharge	Grab sample
Nitrite	milligrams per litre	Monthly during discharge	Grab sample
Nitrogen (total)	milligrams per litre	Monthly during discharge	Grab sample
pH	pH	Monthly during discharge	Grab sample
Phosphate	milligrams per litre	Monthly during discharge	Grab sample
Phosphorus (dissolved reactive)	milligrams per litre	Monthly during discharge	Grab sample
Phosphorus (total)	milligrams per litre	Monthly during discharge	Grab sample
Total Kjeldahl Nitrogen	milligrams per litre	Monthly during discharge	Grab sample
Total suspended solids	milligrams per litre	Monthly during discharge	Grab sample

POINT 23

Pollutant	Units of measure	Frequency	Sampling Method
Ammonia	milligrams per litre	Daily	24 hour composite sample
Arsenic	milligrams per litre	Daily	24 hour composite sample
Chromium (hexavalent)	milligrams per litre	Daily	24 hour composite sample
Nitrogen (total)	milligrams per litre	Daily	24 hour composite sample

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Oil and Grease	milligrams per litre	Twice weekly	Grab sample
pH	pH	Continuous	In line instrumentation
Temperature	degrees Celsius	Continuous	In line instrumentation
Total suspended solids	milligrams per litre	Daily	24 hour composite sample
Zinc	milligrams per litre	Daily	24 hour composite sample

POINT 30

Pollutant	Units of measure	Frequency	Sampling Method
Conductivity	deciSiemens per metre	Quarterly	Grab sample
Enterococci	colony forming units per 100 millilitres	Quarterly	Grab sample
Faecal Coliforms	colony forming units per 100 millilitres	Quarterly	Grab sample
Magnesium	milligrams per litre	Quarterly	Grab sample
Nitrogen (total)	milligrams per litre	Quarterly	Grab sample
pH	pH	Quarterly	Grab sample
Phosphorus (total)	milligrams per litre	Quarterly	Grab sample
Potassium	milligrams per litre	Quarterly	Grab sample
Sodium	milligrams per litre	Quarterly	Grab sample
Sodium Adsorption Ratio	sodium adsorption ratio	Quarterly	Grab sample

POINT 31

Pollutant	Units of measure	Frequency	Sampling Method
Bray phosphorus	milligrams per kilogram	Yearly	Special Method 1
Cation Exchange Capacity	centimoles of positive charge per kilogram of soil	Yearly	Special Method 1
Chloride	milligrams per kilogram	Yearly	Special Method 1
Colwell phosphorus	milligrams per kilogram	Yearly	Special Method 1
Conductivity	deciSiemens per metre	Yearly	Special Method 1
Exchangeable calcium	centimoles of positive charge per kilogram of soil	Yearly	Special Method 1
Exchangeable magnesium	centimoles of positive charge per kilogram of soil	Yearly	Special Method 1
Exchangeable potassium	centimoles of positive charge per kilogram of soil	Yearly	Special Method 1
Exchangeable sodium	centimoles of positive charge per kilogram of soil	Yearly	Special Method 1
Moisture	percent	Yearly	Special Method 1
Nitrate	milligrams per kilogram	3 years	Special Method 1
Nitrogen (total)	milligrams per kilogram	3 years	Special Method 1
Nitrogen Oxides	milligrams per kilogram	3 years	Special Method 1
pH	pH	Yearly	Special Method 1
Phosphorus (total)	milligrams per kilogram	3 years	Special Method 1

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Phosphorus Sorption Capacity	milligrams per kilogram	3 years	Special Method 1
Total Kjeldahl Nitrogen	milligrams per kilogram	3 years	Special Method 1

POINT 32,33

Pollutant	Units of measure	Frequency	Sampling Method
Calcium	milligrams per litre	Every 6 months	Representative sample
Conductivity	deciSiemens per metre	Every 6 months	Representative sample
Enterococci	colony forming units per 100 millilitres	Every 6 months	Representative sample
Faecal Coliforms	colony forming units per 100 millilitres	Every 6 months	Representative sample
Magnesium	milligrams per litre	Every 6 months	Representative sample
Nitrate	milligrams per litre	Every 6 months	Representative sample
Nitrogen (total)	milligrams per litre	Every 6 months	Representative sample
pH	pH	Every 6 months	Representative sample
Phosphorus (total)	milligrams per litre	Every 6 months	Representative sample
Sodium	milligrams per litre	Every 6 months	Representative sample
Standing Water Level	metres	Every 6 months	In situ
Sulfate	milligrams per litre	Every 6 months	Representative sample
Total dissolved solids	milligrams per litre	Every 6 months	Representative sample
Total Kjeldahl Nitrogen	milligrams per litre	Every 6 months	Representative sample

M2.4 For the purposes of the table(s) above Special Method 1 means that, for each irrigation area, representative samples must be taken of the soil within the following depths: (a) 0 to 30cm; and, (b) 30-60cm.

M3 Testing methods - concentration limits

- M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:
- any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or
 - if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or
 - if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.

Note: The *Protection of the Environment Operations (Clean Air) Regulation 2010* requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved

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Methods for the Sampling and Analysis of Air Pollutants in NSW".

- M3.2 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

Note: Testing for the concentrations of Nitrogen (ammonia) and Oil and Grease may also be conducted in accordance with the methods detailed in correspondence from the Licensee to the EPA dated 4 February 2008, which have been filed as part of EPA document DOC20/452358.

M4 Testing methods - load limits

Note: Division 3 of the *Protection of the Environment Operations (General) Regulation 2009* requires that monitoring of actual loads of assessable pollutants listed in L2.2 must be carried out in accordance with the relevant load calculation protocol set out for the fee-based activity classification listed in the Administrative Conditions of this licence.

M5 Weather monitoring

- M5.1 The licensee must monitor each parameter specified in Column 1 in the table below. The licensee must use the sampling method, units of measure, and sample at the frequency specified in the opposite in the other columns.

Parameter	Units of Measure	Frequency	Sampling Method
Rainfall	Millimetres	Daily	AM-4
Wind speed or run	Metres per second	Continuous	AM-2 and AM-4
Wind direction	Degrees	Continuous	AM-2 and AM-4

M6 Recording of pollution complaints

- M6.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.
- M6.2 The record must include details of the following:
- the date and time of the complaint;
 - the method by which the complaint was made;
 - any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
 - the nature of the complaint;
 - the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
 - if no action was taken by the licensee, the reasons why no action was taken.

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M6.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M6.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M7 Telephone complaints line

M7.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

M7.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

M7.3 The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.

M7.4 The licensee must nominate to the EPA a single telephone number for the purpose of the EPA contacting the licensee to provide immediate assistance or response during emergencies or any other incidents at the premises. The telephone number must be current at all times.

The nomination must be provided to the EPA's Director - Hunter at PO Box 488G, Newcastle NSW 2300.

Note: This condition does not apply until two (2) weeks after the date of issue of the Notice adding this condition to the licence.

M8 Requirement to monitor volume or mass

M8.1 For each discharge point or utilisation area specified below, the licensee must monitor:

- the volume of liquids discharged to water or applied to the area;
 - the mass of solids applied to the area;
 - the mass of pollutants emitted to the air;
- at the frequency and using the method and units of measure, specified below.

POINT 10,11,12,13,14,15

Frequency	Unit of Measure	Sampling Method
Daily during any discharge	kilolitres per day	Flow meter and continuous logger

POINT 24,38

Frequency	Unit of Measure	Sampling Method
Continuous	kilolitres per day	In line instrumentation

POINT 30

Frequency	Unit of Measure	Sampling Method
Daily during any discharge	kilolitres per day	By Calculation (volume flow rate or pump capacity multiplied by operating time)

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6 Reporting Conditions

R1 Annual return documents

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:

1. a Statement of Compliance,
2. a Monitoring and Complaints Summary,
3. a Statement of Compliance - Licence Conditions,
4. a Statement of Compliance - Load based Fee,
5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,
6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data; and
7. a Statement of Compliance - Environmental Management Systems and Practices.

At the end of each reporting period, the EPA will provide to the licensee notification that the Annual Return is due.

R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

R1.3 Where this licence is transferred from the licensee to a new licensee:

- a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
- b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:

- a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
- b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

R1.5 The Annual Return for the reporting period must be supplied to the EPA via eConnect *EPA* or by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

R1.6 Where the licensee is unable to complete a part of the Annual Return by the due date because the licensee was unable to calculate the actual load of a pollutant due to circumstances beyond the licensee's control, the licensee must notify the EPA in writing as soon as practicable, and in any event not later than the due date. The notification must specify:

- a) the assessable pollutants for which the actual load could not be calculated; and

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b) the relevant circumstances that were beyond the control of the licensee.

R1.7 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

R1.8 Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:

a) the licence holder; or

b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

R2 Notification of environmental harm

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

R3 Written report

R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:

a) where this licence applies to premises, an event has occurred at the premises; or

b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,

and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

R3.3 The request may require a report which includes any or all of the following information:

a) the cause, time and duration of the event;

b) the type, volume and concentration of every pollutant discharged as a result of the event;

c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;

d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;

e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;

f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and

g) any other relevant matters.

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- R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

R4 Other reporting conditions

Ammonia Flare Activation

- R4.1 By 31 March each year, the licensee must provide an annual ammonia flare activation summary report to the EPA's Director Metro North. The report must include, but is not limited to, the following.
- a) The date and time the ammonia flare activation occurred.
 - b) The duration of the ammonia flare activation.
 - c) The estimated quantity of ammonia directed to the flare during the flare activation period.
 - d) Details of operational parameters that affected destruction efficiency during the flare activation.
 - e) Actions identified to prevent further flare activations.

Stormwater Pollutant Annual Loads

- R4.2 (a) For each of the pollutants listed for Points 10 to 15 in the table under condition M2.3 the licensee must estimate the load (in kilograms) discharged from the premises to surface waters during the reporting period. This estimate must be based on concentration and volume monitoring data.
- (b) A report detailing these annual loads must be provided with the Annual Return. The report must also include the methodology used to estimate the loads.

7 General Conditions

G1 Copy of licence kept at the premises or plant

- G1.1 A copy of this licence must be kept at the premises to which the licence applies.
- G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.
- G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

G2 Other general conditions

G2.1 Completed Programs

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Program	Description	Completed Date
Prepare action plan to divert stormwater	Prepare action plan and timetable to divert stormwater flows from the southern end of the premises to the authorised discharge point to reduce pollution of groundwater and stormwater.	30-September-2002
Action plan to reduce nitrogen discharged	Action plan to reduce the amount of total nitrogen discharged from the premises to the Hunter River.	30-September-2002
Install magflow meter on effluent pipeline	Install magflow measurement device on effluent pipeline to provide a better measurement of volumes discharged.	31-August-2003
Modification to ammonia plant	Modification to the ammonia plant to facilitate recycling of ammonia plant effluent; preparation of N mass balance; and determination of the most cost effective strategy to reduce N discharges.	31-March-2004
Install pH monitoring and caustic dosing system	Install pH monitoring and caustic dosing system to control pH of discharges from the nitric acid plants.	31-December-2003
Works to control pH of effluent	Works to control pH of effluent arising from the demineraliser pond.	31-March-2004
Stormwater contamination report	Preparation of a stormwater contamination report.	31-December-2004
First flush system	Construction of a first flush system to serve the southern end of the plant, comprising Catchments 4,5 and 6, to reduce ammonium nitrate contamination of stormwater and groundwater.	01-May-2006
Installation of CO2 blower in drain 120F	Installation of a CO2 blower in drain 120F to effluent system to reduce stormwater contamination.	24-February-2006
Installation of effluent concentrator	Installation of effluent concentrator to reduce the amount of nitrogen discharged from the premises.	31-May-2005
Direct absorber sump to effluent system	Direct absorber sump to effluent system to reduce stormwater contamination.	24-February-2006
Bunding of the alum storage facility	Bund of the alum storage facility to contain spillages and prevent stormwater contamination.	25-November-2006
NAP2 oil separator connected to effluent system	NAP2 oil separator discharge connected to effluent system to contain oil spillages.	24-March-2006
Connect AN1 wet section drain to effluent system	Connect AN1 wet section drain to effluent system.	25-November-2006
Bag warehouse boundary drain	Construct bag warehouse boundary drain to reduce stormwater contamination.	15-December-2006
Construct drain around coating plant	Construct new drain around coating plant to reduce stormwater contamination.	31-July-2006

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Nitrogen discharge reduction works action program	Develop and carry out program of works to reduce the nitrogen load discharged to the Hunter River via Discharge Points 23 & 24, to achieve a reduced load limit of 200,000kg per year.	31-March-2010
Noise impact assessment	The licensee must conduct a noise impact assessment; prepare and submit a report detailing the findings and recommendations.	13-November-2008
Groundwater nutrient monitoring plan	The licensee must develop and implement a groundwater nutrient monitoring plan.	28-November-2008
PRP 20 - Bunding Review	The licensee must undertake a review of all above ground tanks and assess whether they are bunded or have an alternate spill containment system.	30-September-2011
PRP 21 - AN1 Prill Tower Emission Investigation	The licensee must characterise particulate emissions from the AN1 Prill Tower; review options to reduce emissions; and evaluate feasible options to reduce emissions.	20-December-2013
PRP 22 - Nitrates Drainage Upgrade Works	Preparation of a plan detailing drainage improvement works to be undertaken in the nitrates area during the reporting period.	31-May-2012
PRP 23 - Nitrogen in Effluent Source Investigation	Investigation of the source of nitrogen discharged to the site's effluent system.	31-March-2012
PRP 24 - Noise Reduction Program	Implementation of noise control measures identified for the NAP1 Compressor Building and NAP2 Primary Air Compressor; revised noise modelling and assessment.	31-March-2012
PRP 25 - Investigation of HVAS	Review of the location of the High Volume Air Sampler (HVAS) at Point 8 with the Aust. Std.; and plan to address any issues identified.	22-December-2011
PRP 26 - Nitrates Boiler Stack Sampling Plane	Installation of new monitoring points on the Nitrates Boiler Stack (Point 19) compliant with the Aust. Std.	31-May-2012
PRP 27 - Effluent Temperature Reduction Program	Upgrade the Process Condensate RO Plant pre-treatment system to reduce the solution temperature of effluent discharged via Point 23.	31-March-2012
PRP 28 - Automatic Stormwater Samplers	Installation of automatic sampling units at Points 10 to 15 to enable the automatic sampling of stormwater discharging these points.	31-March-2012
PRP 29 - Stormwater Isolation Valves	Installation of isolation valves on Points 10 to 15 as a control to prevent the pollution to waters from an incident.	31-January-2013
PRP 30 - Bunding Improvement Works	Installation of bunding associated with the AN1 Reclaim Solution Tank; AN2 Reclaim Tank; AN1 C Reject Tank; MDEA Solution Storage Tank; Fire Water Pump Diesel Tanks; and, Demin Plant Clarifier to prevent the loss of containment and pollution of land and/or waters.	28-March-2013
PRP 31 - Low pH Groundwater Plume Remediation	Assess and implement actions to remediate the low pH groundwater plume in the vicinity of the No. 1 Nitric Acid Plant Air Lift.	31-January-2012

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PRP 32 - General Improvements Program	Improvements of alarms; alarm procedures; alarm management; restriction orifices on Ammonia Feed Tanks; risk assessment of abnormal conditions; assessment of the adequacy of trip protection; upgrade to relief system from No. 5 Ammonia Feed Tank; upgrade to Nitrates DCS.	31-March-2014
PRP 33 - Implementation of Low pH Remediation Actions	Implementation of actions to remediate the low pH groundwater plume in the vicinity and downgradient of the NAP1 Air Lift.	31-March-2014
PRP 34 - Ammonia Plant CO2 Vent Stack Silencer	Installation of a silencer on the Ammonia Plant CO2 Vent Stack to reduce noise emissions.	30-November-2012
PRP 35 - Effluent Temperature Reduction Program	Program of works to reduce temperature load discharged via Points 23 & 24.	30-September-2013
PRP 36 - Effluent Temperature Reduction Program	Program of works to reduce temperature load discharged via Points 23 and 24.	30-September-2013
PRP 37 - Nitrates Drainage Upgrade Program	Feasibility design of upgrade works relating to NAP1 steam condensate sources and general plant effluent; and, NAP2 Neutralisation Pit minimising the potential for contamination of ground and surface waters.	31-March-2014
PRP 38 - Ammonia Plant Reformer Stack Sampling Points	Installation of sampling port on the Ammonia Plant Reformer Stack compliant with AS 4323.1: 1995 to enable appropriate and representative monitoring of emissions to atmosphere.	26-March-2014
PRP 39 - Bunding Improvement Works	Replacement of the AN1 Dry Section Process Condensate Tank and the AN1 Reverse Osmosis Condensate Storage Tank with new bunded tanks.	23-December-2014
PRP 40 - Installation of Volume Monitoring Devices	Installation of monitoring devices at Points 10 to 15 to monitor the volume of stormwater discharged from the premises.	01-July-2014
PRP 41 - Stormwater Quality Investigation	Undertaking of a monitoring program to investigate and characterise the quality of stormwater discharging at Points 10 to 15.	28-September-2015
PRP 42 - Nitrate Drainage Upgrade Works 2014-2015	Implementation of nitrates drainage upgrade works relating to NAP1 steam condensate sources and general plant effluent; and, NAP2 Neutralisation Pit minimising the potential for contamination of ground and surface waters.	18-August-2015
PRP 43 - Installation of Groundwater Wells	Installation of groundwater wells at Points 32 and 33 for the purpose of monitoring groundwater associated with disposal of sewage to the Main Transpiration Area.	29-April-2015
PRP 44 - AN1 Dust Collector Sampling Ports	Installation of sampling port on the AN1 Dust Collector Stack Exhaust compliant with AS 4323.1: 1995 to enable appropriate and representative monitoring of emissions to atmosphere.	21-December-2016

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PRP 45 - Stormwater Quality Improvement Program	Works to improve the quality of stormwater discharging via Points 10-15, aimed at reducing the potential for the pollution of waters.	29-September-2017
PRP 46 - PM2.5 Characterisation Study	Analysis of 2015-2016 Stockton Air Quality Monitor PM2.5 samples; and, a review of feasible options to reduce PM2.5 ammonium nitrate particle emissions from significant sources.	28-February-2018
PRP 47 - Feasibility Assessment of Irrigated Fibre-Bed Scrubbing Technology to Reduce PM2.5 Emissions from the Prill Tower	Investigation into the feasibility of implementing irrigated fibre-bed scrubbing (IFS) to reduce PM2.5 emissions from the Prill Tower	19-December-2019

8 Pollution Studies and Reduction Programs

U1 Pollution Reduction Program (PRP) 48 - Nutrient management works and monitoring

U1.1 Background

Studies into Hunter River water quality have shown that whilst it has improved in recent years, more work needs to be done. Reductions in nutrient pollution to the Hunter River from licensed premises is a focus for the EPA. The licensee generates and handles materials that are high in nutrients.

Modelling of the Hunter River Estuary suggests that it is a misconception that industrial discharges are quickly flushed out to sea with the tides. The modelling suggests that the tidal cycle merely disperses and thus dilutes the pollutants rather than transporting them to the ocean and the overall load of the pollutants is largely retained in the estuary systems. It is therefore important that premises continue to reduce pollutant discharges to the Hunter River.

In recent years the licensee has implemented a range of actions aimed at reducing pollutant loads to the Hunter River. An aim of this PRP is to identify further improvement works or actions that will be implemented at the premises to continue to reduce pollutant loads discharged to groundwater, surface water and soils. The aim of this PRP is also to quantify the changes in concentrations (for groundwater and seepage) and loads (for stormwater, process effluent and Prill Tower fallout) of key nutrients over time and how actions at the premises have impacted pollutant concentrations and loads.

U1.2 Deliverables

The licensee must undertake a program of source control works to reduce impacts on groundwater, surface water and soils from nutrients at the premises, including but not limited to ammonia and ammonium nitrate.

U1.3 The licensee must develop and implement a monitoring program to assess nutrient contamination of groundwater at the premises and seepage from the premises. The program must include, but need not be limited to, the following details and information:

- sampling from selected groundwater monitoring wells onsite and offsite;
- frequency of sampling for each of the monitoring points;
- sampling of groundwater seepage at selected locations at the Walsh Point Peninsula adjacent to the

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- premises (sampling to be undertaken during the last 3 hours on an outgoing tide);
- d) analysis requirements for groundwater and seepage samples including, but not limited, to ammonia, oxidised nitrogen (nitrate plus nitrite), total nitrogen and total inorganic nitrogen;
- e) proposed trend analysis for data collected under the program.

- U1.4 By 30 November each year, the licensee must provide to the EPA's Director Metro North an annual nutrient works and monitoring report. The report must include:
- a) an overview of identified nutrient source reduction opportunities;
 - b) a summary of the nutrient control works completed in the 12-month period prior to 30 September of that year;
 - c) a summary of the proposed nutrient control works to be undertaken in the 12-month period to 30 September of the following year, including the scope and anticipated timing of the nominated works;
 - d) a tabular and graphical presentation of groundwater and seepage monitoring results for the annual reporting period compared to previous reporting periods or available data;
 - e) a tabular and graphical presentation of loads of key pollutants (total nitrogen, nitrate and ammonia) discharged from stormwater sub-catchments at the premises over the Annual Return reporting period compared to the previous Annual Return reporting periods or available data;
 - f) a tabular and graphical presentation of loads of key pollutants discharged from Points 23 over the Annual Return reporting period compared to the previous reporting periods going back to 2010;
 - g) an assessment of any trends and changes over time, with an explanation of any statistically significant variations or anomalies in the data and trends; and
 - h) recommendations on further mitigation measures and remedial actions to be taken where trends are showing limited improvement to groundwater contamination and seepage, or increasing trends in nutrient contamination in groundwater or seepages.
- U1.5 By 30 November 2024, the licensee must provide to the EPA's Director Metro North a five year nutrient works and monitoring report. The report must synthesise the first five annual reports required under condition U1.4 and also include an assessment of year by year nutrient loads and nutrient load reductions achieved in stormwater discharges (points 10-15), site process effluent discharges (point 23) and fallout from the prill tower (point 16). The report must also provide recommendations for nutrient monitoring going forward and recommendations to further reduce impacts to groundwater, surface water and soils from nutrients at the premises.

U2 Pollution Reduction Program (PRP) 49 - NO_x Reductions from the Ammonia Plant Reformer

U2.1 Background

Discharges of nitrogen oxides (NO_x) can result in adverse air quality. The Ammonia Plant Reformer stack (point 20) constitutes about 40% of the NO_x load discharged from the premises. In order to improve air quality, the licensee is proposing to install NO_x reduction technology at the Ammonia Plant Reformer.

U2.2 Deliverables

(a) By **15 July 2020**, the licensee must prepare and submit to the EPA a Trial Plan for implementation of "selective non-catalytic reduction" technology and processes to reduce NO_x emissions from the Ammonia Plant Reformer. This report must make predictions as to potential impacts of installing such technology on ambient air quality.

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(b) Subject to EPA approval of the Trial Plan noted in (a) above, by **15 December 2020** the licensee must install selective non-catalytic reduction technology to reduce NOx emissions from the Ammonia Plant Reformer. The licensee must provide written notification to the EPA's Director Metro North within 7 days of installation and commissioning of the selective non-catalytic reduction technology. This notification must be sent to hunter.region@epa.nsw.gov.au

(c) Subject to EPA approval of the Trial Plan noted in (a) above, by **30 June 2021** the licensee must provide to the EPA's Director Metro North an Air Quality Verification Study (AQVS) detailing the impact of the installation of the selective non-catalytic reduction technology on point source air emissions from the Ammonia Plant Reformer. This AQVS must be sent to hunter.region@epa.nsw.gov.au

U3 Pollution Reduction Program (PRP) 50 - Installation of new Pollution Controls at the Prill Tower

U3.1 Background

The Lower Hunter Particle Characterisation Study (2015) found that a portion of the PM2.5 detected at the Stockton ambient air quality monitoring station was composed of primary ammonium nitrate. Primary ammonium nitrate was subsequently found to make up about 40 % of the PM2.5 detected at the Stockton ambient air monitoring station in winter; a time when the monitor is often downwind of the Prill Tower.

The licensee has completed Pollution Reduction Program (PRP) 46 and PRP 47, which were investigations into feasible options to reduce PM2.5 emissions from the Prill Tower. The licensee has identified that irrigated fibrebed scrubber technology is an appropriate pollution control for the Prill Tower air emissions. This PRP is the next step, being formalisation of the installation of new pollution controls to address PM2.5 emissions from the Prill Tower.

Deliverables

- U3.2 The licensee must install an irrigated fibrebed scrubber at the Prill Tower (Point 16) to minimise PM2.5 ammonium nitrate emissions from the premises. The licensee must carry out the project as follows:
- By 1 February 2021, the licensee must complete all geotechnical and structural engineering investigations associated with the current Prill Tower (including but not limited to intrusive structural investigations of the Prill Tower foundations) and prepare a stakeholder engagement and a regulatory approvals plan for the project;
 - By 1 October 2021, the licensee must complete all necessary final engineering designs for the project to allow for the procurement tendering process to commence for long lead time items;
 - By 1 April 2022, the licensee must finalise orders for all long lead-time items for the project;
 - By 1 April 2023, the licensee must complete all necessary pre-works for the project (including earthworks, civil, electrical, structural and mechanical works) and receive the scrubber at the premises;
 - By 1 November 2023, the licensee must achieve practical completion of the project;
 - By 31 January 2024, the licensee must achieve final completion of the project.

Note: This PRP has been added to the licence during the COVID-19 pandemic in mid-2020. COVID has resulted in delays, particularly for items that need to be imported from abroad. The EPA recognises that there might need to be some refinement to the above dates depending upon how the COVID pandemic plays out.

- U3.3 The licensee must submit to the EPA's Director Metro North a progress report within sixty days of each of the dates given in the condition above. Each progress report must include, but need not be limited to:
- an overview of the project;
 - a description of the project activities and works completed during the period;
 - a description of the project activities and works proposed for the next period;

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d) a summary of any significant deviation(s) from the engineering design or the milestones given in the condition above, along with their cause.

U3.4 The licensee must notify the EPA's Director Metro North within thirty days of becoming aware of any significant deviation from the engineering design or the milestones and their cause.

9 Special Conditions

E1 Annual Bunding Improvement Works Report

E1.1 **By 31 March each year**, until the licensee has in place bunding or alternative containment of all above ground tanks containing material that is likely to cause environmental harm, the licensee must provide to the EPA's Director Metro North an annual report regarding bunding improvement works at the premises. The report must include, but is not limited to, the following.

- (a) A summary of the bunding works completed in the 12 month period prior to 31 March of that year.
- (b) Proposed bunding works to be undertaken in the 12 month period proceeding 31 March of that year, including the scope and timing of the nominated works.
- (c) For the following 12 month period, Information on any plant upgrades that will make existing tanks obsolete or proposals for new tanks to be installed on the premises to ensure compliance with the respective Australian Standards on bunding.

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Dictionary

General Dictionary

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

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flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder described at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
special waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> .



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TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non - putrescible), special waste or hazardous waste

Mr Grahame Clarke

Environment Protection Authority

(By Delegation)

Date of this edition: 14-November-2000

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End Notes

- 1 Licence varied by change of Contact, issued on 10-Jan-2002, which came into effect on 10-Jan-2002.
- 2 Licence varied by notice 1016534, issued on 23-Jul-2002, which came into effect on 17-Aug-2002.
- 3 Licence varied by notice 1020245, issued on 10-Oct-2002, which came into effect on 04-Nov-2002.
- 4 Licence transferred through application 141572, approved on 15-Nov-2002, which came into effect on 01-Nov-2002.
- 5 Licence varied by notice 1022415, issued on 12-Aug-2003, which came into effect on 19-Aug-2003.
- 6 Licence transferred through application 142185, approved on 21-Aug-2003, which came into effect on 01-May-2003.
- 7 Licence varied by notice 1038929, issued on 21-Jul-2004, which came into effect on 15-Aug-2004.
- 8 Licence varied by notice 1044622, issued on 10-Mar-2005, which came into effect on 04-Apr-2005.
- 9 Licence varied by notice 1048785, issued on 25-Jul-2005, which came into effect on 19-Aug-2005.
- 10 Licence varied by notice 1054025, issued on 07-Apr-2006, which came into effect on 07-Apr-2006.
- 11 Licence varied by notice 1068940, issued on 22-May-2007, which came into effect on 22-May-2007.
- 12 Licence varied by notice 1076785, issued on 31-Oct-2007, which came into effect on 31-Oct-2007.
- 13 Licence varied by notice 1083938, issued on 29-Oct-2008, which came into effect on 29-Oct-2008.
- 14 Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
- 15 Licence varied by correction to scheduled activity name, issued on 22-Dec-2010, which came into effect on 22-Dec-2010.
- 16 Licence varied by correction to scheduled activity name, issued on 22-Dec-2010, which came into effect on 22-Dec-2010.
- 17 Licence varied by notice 1125998, issued on 08-Jun-2011, which came into effect on 08-Jun-2011.
- 18 Licence varied by notice 1500429 issued on 02-Sep-2011

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19	Licence varied by notice	1501581 issued on 30-Nov-2011
20	Licence varied by notice	1503045 issued on 05-Dec-2011
21	Licence varied by notice	1503257 issued on 09-Dec-2011
22	Licence varied by notice	1504713 issued on 16-Mar-2012
23	Licence varied by notice	1508019 issued on 27-Aug-2012
24	Licence varied by notice	1509021 issued on 28-Sep-2012
25	Licence varied by notice	1511637 issued on 31-Jan-2013
26	Licence varied by notice	1512519 issued on 07-Mar-2013
27	Licence varied by notice	1513703 issued on 26-Jul-2013
28	Licence varied by notice	1516936 issued on 30-Jan-2014
29	Licence varied by notice	1522161 issued on 23-Dec-2014
30	Licence varied by notice	1530303 issued on 19-May-2015
31	Licence varied by notice	1532931 issued on 23-Sep-2015
32	Licence varied by notice	1537824 issued on 22-Mar-2016
33	Licence varied by notice	1546156 issued on 09-Dec-2016
34	Licence varied by notice	1548416 issued on 18-Jan-2017
35	Licence varied by notice	1554930 issued on 31-Aug-2017
36	Licence varied by notice	1560093 issued on 19-Dec-2017
37	Licence varied by notice	1567222 issued on 27-Sep-2018
38	Licence varied by notice	1590586 issued on 11-Jun-2020
39	Licence varied by notice	1598458 issued on 05-Aug-2020