Government of Western Australia
Department of Environment Regulation

# Licence

## *Environmental Protection Act 1986,* Part V

## Licensee: Dampier Salt Limited

## Licence: L7178/1997/11

**Registered office:** 37 Belmont Avenue
BELMONT WA 6104

**ACN:** 008 706 590

**Premises address:** Dampier Salt – Lake Macleod
AML 70/245
Blowholes Road
CARNARVON WA 6701 as depicted in Schedule 1.

**Issue date:** Thursday, 1 October 2015

**Commencement date:** Sunday, 4 October 2015

**Expiry date:** Friday, 3 October 2025

**Prescribed premises category**
Schedule 1 of the *Environmental Protection Regulations 1987*

| Category number | Category description | Category production or design capacity | Approved Premises production or design capacity |
|---|---|---|---|
| 14 | Solar salt manufacturing | Not applicable | 3 100 000 tonnes per annual period |
| 58 | Bulk material loading or unloading (other than salt) | 100 tonnes or more per year | 50 000 tonnes per day |
| 58A | Bulk material loading or unloading (salt) | 100 tonnes or more per year | 84 000 tonnes per day |
| 64 | Class II or III putrescible landfill site | 20 tonnes or more per year | 60 tonnes per annual period |
| 80 | Non-metallic mineral processing | 100 tonnes or more per year | 500 000 tonnes per annual period |

**Conditions**
This Licence is subject to the conditions set out in the attached pages.

Date signed: 01 October 2015
.....
Kerry Laszig
Director – Licensing and Approvals
Officer delegated under section 20
of the *Environmental Protection Act 1986*

# Contents



# Introduction

This Introduction is not part of the Licence conditions.

**DER's industry licensing role**
The Department of Environment Regulation (DER) is a government department for the state of Western Australia in the portfolio of the Minister for Environment. DER's purpose is to advise on and implement strategies for a healthy environment for the benefit of all current and future Western Australians.

DER has responsibilities under Part V of the *Environmental Protection Act 1986* (the Act) for the licensing of prescribed premises. Through this process DER regulates to prevent, control and abate pollution and environmental harm to conserve and protect the environment. DER also monitors and audits compliance with works approvals and licence conditions, takes enforcement action as appropriate and develops and implements licensing and industry regulation policy.

**Licence requirements**
This Licence is issued under Part V of the Act. Conditions contained within the Licence relate to the prevention, reduction or control of emissions and discharges to the environment and to the monitoring and reporting of them.

Where other statutory instruments impose obligations on the Premises/Licensee the intention is not to replicate them in the licence conditions. You should therefore ensure that you are aware of all your statutory obligations under the Act and any other statutory instrument. Legislation can be accessed through the State Law Publisher website using the following link:
http://www.slp.wa.gov.au/legislation/statutes.nsf/default.html

For your Premises relevant statutory instruments include but are not limited to obligations under the:

- *Environmental Protection (Unauthorised Discharges) Regulations 2004* – these Regulations make it an offence to discharge certain materials such as contaminated stormwater into the environment other than in the circumstances set out in the Regulations.

- *Environmental Protection (Controlled Waste) Regulations 2004* - these Regulations place obligations on you if you produce, accept, transport or dispose of controlled waste.

- *Environmental Protection (Noise) Regulations 1997* – these Regulations require noise emissions from the Premises to comply with the assigned noise levels set out in the Regulations.

You must comply with your licence. Non-compliance with your licence is an offence and strict penalties exist for those who do not comply.

Licence holders are also reminded of the requirements of section 53 of the Act which places restrictions on making certain changes to prescribed premises unless the changes are in accordance with a works approval, licence, closure notice or environmental protection notice.

**Licence fees**
If you have a licence that is issued for more than one year, you are required to pay an annual licence fee prior to the anniversary date of issue of your licence. Non payment of annual licence fees will result in your licence ceasing to have effect meaning that it will no longer be valid and you will need to apply for a new licence for your Premises.

**Ministerial conditions**
If your Premises has been assessed under Part IV of the Act you may have had conditions imposed by the Minister for Environment. You are required to comply with any conditions imposed by the Minister.

**Premises description and Licence summary**
The Lake MacLeod site has operated since the 1960's under the *Evaporites (Lake MacLeod) Agreement Act 1967*, Dampier Salt Limited took control of the premises in 1978. The premises is located within the Shire of Carnarvon and is approximately 50 kilometers north of Carnarvon. It is located on Mining tenement AML 70/245 which covers approximately 220 000 hectares of land, covering the majority of Lake MacLeod.

Category 14 & 58A– Salt Maufacturing and bulk loading operation
The saturated brine contained in Lake MacLeod is approximately 10 times saltier than normal seawater, eliminating the need for a series of concentration ponds normally required at other salt mines to evaporate water to reach "salting" point (sodium chloride saturation).

A collection ditch has been cut into the halite layer to recover brine from Lake MacLeod. The brine is pumped at an average rate of 55 cubic metres per minute from the collection ditch into 8.5 kms of transport channel to a common collection point. There are thirty three crystallisers, averaging 23 ha each, used for salt production. Once deposited in the crystallising ponds the brine is further evaporated and salt is deposited on top of a pre-formed floor of salt. Deposition is stopped by draining the remaining brine when about three quarters of the sodium chloride has been deposited and before other salts come out of solution in significant quantities. The residual brine is called bitterns and contains high concentrations of potassium, magnesium and other salts. Bitterns are discharged from the crystallisers into a holding pond on the lake's surface where the water is evaporated. The resulting solid bitterns represent a significant resource which is also harvested.

Harvesting of salt is carried out using a laser controlled salt cutter with an average capacity of 1000 tonnes per hour discharging directly into three 60 tonne trailers hauled by a prime mover. The harvested salt is then washed at the salt wash plant to remove impurities off the salt. Once washed the salt is stockpiled and allowed to drain for approximately 6 weeks for the moisture content to fall below 2.5 %. Once the salt has finished draining, it is hauled by road trains, 24 km to a 200 000 T stockpile at Cape Cuvier for shipment. Reclaim for ship loading is by dozers which push the salt into a hopper, which then feeds to a conveyor system under the stockpile. The conveyor system transports the salt to the ship loader which feeds the salt onto the vessel at the wharf.

Cateogry 80 & 58- Gypsum Mining and bulk loading operation
Gypsum mining is carried out on the premises by excavation of raw gypsum from the lake surface. This is achieved through using an excavator and truck mining method. Following excavation, heap leaching of the gypsum stockpiles occurs with sprinklers using bore and fresh water (the latter produced from bore water using the reverse osmosis plant at the gypsum facility) on two gypsum leach pads. This washes sodium chloride (salt) minerals from the gypsum stockpiles to the required levels of less than 150 parts per million chloride. The gypsum is then

transported to Cape Cuvier where it is stockpiled and shipped at an annual production rate of approximately 500 000 tonnes per annum.

Category 64 - Landfill
The Lake Macleod operation disposes of inert waste and tyres at a landfill area on the premises. Some putrescible waste, in the form of used timber, is also disposed of at the landfill. All other wastes, including putrescible waste from the offices and crib rooms, are sent off site to the Shire of Carnarvon landfill facility in Carnarvon. The landfill facility uses a deep trench of around 3 to 4 m deep to dispose of waste.

This Licence is the successor to licence L7178/1997/10 and includes a change to the format of the licence and the addition of discharge points to land and surface water.

The licences and works approvals issued for the Premises since 04/10/2000 are:

| **Instrument log** | | |
|---|---|---|
| **Instrument** | **Issued** | **Description** |
| L7178/1997/4 | 04/10/2000 | Licence reissue |
| L7178/1997/5 | 04/10/2001 | Licence reissue |
| L7178/1997/6 | 04/10/2002 | Licence reissue |
| L7178/1997/7 | 04/10/2003 | Licence reissue |
| L7178/1997/8 | 09/11/2004 | Licence reissue |
| L7178/1997/9 | 01/10/2007 | Licence reissue |
| L7178/1997/10 | 04/10/2010 | Licence reissue |
| W5269/2012/1 | 22/11/2012 | Works approval for gypsum operations |
| W5269/2012/1 | 20/03/2014 | Works approval amendment to increase production capacity of gypsum operations |
| L7178/1997/11 | 01/10/2015 | Licence reissue |

**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 the power of this Licence 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 the power of this Licence to impose and are not otherwise *ultra vires* or invalid.

**END OF INTRODUCTION**

# Licence conditions

# 1 General

### 1.1 Interpretation

1.1.1 In the Licence, definitions from the *Environmental Protection Act 1986* apply unless the contrary intention appears.

1.1.2 For the purposes of this Licence, unless the contrary intention appears:

**'Act'** means the *Environmental Protection Act 1986;*

**'annual period'** means the inclusive period from 1 January until 31 December in the same year;

**'AS/NZS 5667.4'** means the Australian Standard AS/NZS 5667.4 *Water Quality – Sampling – Guidance on sampling from lakes, natural and man-made;*

**'AS/NZS 5667.6'** means the Australian Standard AS/NZS 5667.6 *Water Quality – Sampling – Guidance on sampling of rivers and streams;*

**'AS/NZS 5667.10'** means the Australian Standard AS/NZS 5667.10 *Water Quality – Sampling – Guidance on sampling of waste waters;*

**'CEO'** means Chief Executive Officer of the Department of Environment Regulation;

**'CEO'** for the purpose of correspondence means;
Chief Executive Officer
Department Administering the Environmental Protection Act 1986
Locked Bag 33
CLOISTERS SQUARE WA 6850
Email: info@der.wa.gov.au

**'Clean Fill'** has the meaning defined in Landfill Definitions;

**"Gypsum Operations Dust Management Plan"** means Gypsum Operations Dust Management Plan JA- MPL-1462, Rio Tinto, Dampier Salt Limited, Version 3.0, Last reviewed 30 September 2015;

**'Inert Waste Type 1'** has the meaning defined in Landfill Definitions;

**'Inert Waste Type 2'** has the meaning defined in Landfill Definitions;

**'Landfill Definitions'** means the document titled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer of the Department of Environment as amended from time to time.;

**'Licence'** means this Licence numbered L7178/1997/11 and issued under the Act;

**'Licensee'** means the person or organisation named as Licensee on page 1 of the Licence;

**'NATA'** means the National Association of Testing Authorities, Australia;

**'NATA accredited'** means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis;

**'Premises'** means the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the Licence;

**'Putrescible'** has the meaning defined in Landfill Definitions;

**'Schedule 1'** means Schedule 1 of this Licence unless otherwise stated; and

**'Schedule 2'** means Schedule 2 of this Licence unless otherwise stated.

1.1.3 Any reference to an Australian or other standard in the Licence means the relevant parts of the the standard in force from time to time during the term of this Licence.

1.1.4 Any reference to a guideline or code of practice in the Licence means the version of that guideline or code of practice in force from time to time, and shall include any amendments or replacements to that guideline or code of practice made during the term of this Licence.

1.1.5 Nothing in the Licence shall be taken to authorise any emission that is not mentioned in the Licence, where the emission amounts to:
(a) pollution;
(b) unreasonable emission;
(c) discharge of waste in circumstances likely to cause pollution; or
(d) being contrary to any written law.

## 1.2 General conditions

1.2.1 The Licensee shall operate and maintain all pollution control and monitoring equipment to the manufacturer's specification or any relevant and effective internal management system.

1.2.2 The Licensee shall immediately recover, or remove and dispose of spills of environmentally hazardous materials outside an engineered containment system.

1.2.3 The Licensee shall:
(a) implement all practical measures to prevent stormwater run-off becoming contaminated by the activities on the Premises; and
(b) treat contaminated or potentially contaminated stormwater as necessary prior to being discharged from the Premises.[1]

Note1: *The Environmental Protection (Unauthorised Discharges) Regulations 2004* make it an offence to discharge certain materials into the environment.

## 1.3 Premises operation

1.3.1 The Licensee shall ensure that where wastes produced on the Premises is not taken off-site for lawful use or disposal, they are managed in accordance with the process requirements in Table 1.3.1.

**Table 1.3.1: Waste processing**

| Waste type | Process(es) | Process limits[1, 2] |
|---|---|---|
| Inert Waste Type 1<br>Inert Waste Type 2<br>Clean Fill<br>Putrecible wastes | Handling, associated storage and disposal of waste by landfilling | <u>All waste types</u><br>• No more than 60 tonnes per year of all waste types cumulatively shall be disposed of by landfilling;<br>• Disposal of waste by landfilling shall only take place within the landfill area shown on the Landfill Area Map in Schedule 1.<br>• Waste shall be placed in a defined trench or within an area enclosed by earthen bunds, and<br>• The tipping area is to be no greater than two metres in height above ground level.<br><br><u>Special Waste Type 2 (Tyres)</u><br>• Tyres are to be covered at regular intervals such that no more than 1000 tyres are left exposed at any one time; and<br>• Batches of tyres should be separated from each other by at least |

| | | |
|---|---|---|
| | | 100 mm of soil with each batch consisting of not more than 1,000 whole tyres or 40 cubic metres of tyre pieces. |

Note 1: Requirements for landfilling tyres are set out in Part 6 of the *Environmental Protection Regulations 1987.*
Note 2: Additional requirements for the acceptance and landfilling of controlled waste (including asbestos and tyres) are set out in the *Environmental Protection (Controlled Waste) Regulations 2004*.

1.3.2 The Licensee shall ensure that cover is applied and maintained on landfilled wastes in accordance with Table 1.3.2 and that sufficient stockpiles of cover are maintained on site at all times.

**Table 1.3.2: Cover requirements [1]**

| Waste Type | Material | Depth | Timescales |
|---|---|---|---|
| Clean fill<br>Type I Inert Wastes<br>Type II Inert wastes<br>Putrecible wastes | Type 1 Inert waste or soil | - | As soon as practicable after deposit and prior to compaction |
| Inert Waste Type II (tyres) | | 1000mm | |

Note 1: Additional requirements for the covering of tyres are set out in Part 6 of the *Environmental Protection Regulations 1987.*

1.3.3 The Licensee shall take all reasonable and practical measures to ensure that no wind-blown waste escapes from the Premises and that wind-blown waste is collected on at least a monthly basis and returned to the tipping area.

1.3.4 The Licensee shall ensure that there are no fires at the landfill facility.

1.3.5 The Licensee shall ensure that bitterns is only discharged into containment ponds with the relevant infrastructure requirements specified in Table 1.3.3.

**Table 1.3.3: Containment infrastructure**

| Containment cell or dam number(s) | Material | Infrastructure requirements |
|---|---|---|
| Bitterns holding ponds as shown on Map of Containment Infrustructure within Schedule 1 | Bitterns | Bitterns holding area - Engineered earthen levee designed to protect the salt field from flooding of the Lake. Levee is selectively rock armoured on outer wall to minimise erosion during flood events. |

1.3.6 The Licensee shall ensure that:
(a) hydrocarbon contaminated soil remediation occurs in landform cells;
(b) leachate from the landform cells and stormwater run-off that has come into contact with the soil shall be directed to a collection sump; and
(c) the collection sump is capable of storing (as a minimum) run-off from a 1 in 10 year rainfall event.

# 2 Emissions

## 2.1 General

2.1.1 The Licensee shall record and investigate the exceedance of any descriptive or numerical limit specified in any part of section 2 of this Licence.

## 2.2 Point source emissions to surface water

2.2.1 The Licensee shall ensure that where waste is emitted to surface water from the emission points in Table 2.2.1 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this Licence.

| Table 2.2.1: Emission points to surface water | | | |
|---|---|---|---|
| **Emission point reference** | **Emission point reference on Map of emission points** | **Description** | **Source including abatement** |
| SW1 | Discharge point 1 (wet salt stockpile discharge) | Outlet pipe into Lake MacLeod from wet salt stockpile. | Wet salt stockpile discharge of excess water to Lake MacLeod. |
| SW2 | Discharge point 2 (wet salt stockpile discharge) | | |
| SW3 | Discharge point 3 (wash plant brine overflow) | Overflow pipe into Lake MacLeod from Wash Plant | Salt wash brine from Wash Plant overflow point |
| SW4 | Discharge point 4 (Truckwaste, lube bay & reverse osmosis plant Discharge Point) | Unlined pond on Lake MacLeod from which truck wash bay, Lube bay and Reverse Osmosis plant (at salt operations) discharge into. | Wastewater from truck wash bay via a triple interceptor. |
| SW5 | Discharge point 5 | Outlet pipe into ocean from truck wash bay at Cape Cuvier. | Wastewater from truck wash bay via a triple interceptor. |
| SW6 | Gypsum Discharge point 1 | Outlet pipe into Lake MacLeod from Gypsum Stockpile 1. | Wastewater from heap leach pad for Gypsum Stockpile 1. |
| SW7 | Gypsum Discharge point 2 | Outlet pipe into Lake MacLeod from Gypsum Stockpile 8 drainage system. | Wastewater from heap leach pad for Gypsum Stockpile 8. |

2.2.2 The Licensee shall not cause or allow point source emissions to surface water greater than the limits listed in Table 2.2.2.

| Table 2.2.2: Point source emission limits to surface water | | | |
|---|---|---|---|
| **Emission point reference** | **Parameter** | **Limit (including units)** | **Averaging period** |
| SW4 | Total Recoverable Hydrocarbons | 15 mg/L | Spot sample |
| SW5 | | | |

## 2.3 Emissions to land

2.3.1 The Licensee shall ensure that where waste is emitted to land from the emission points in Table 2.3.1 and identified on the maps of emission points in Schedule 1 it is done so in accordance with the conditions of this Licence.

| Table 2.3.1: Emissions to land | | | |
|---|---|---|---|
| **Emission point reference** | **Emission point reference and location on Map of emission points** | **Description** | **Source including abatement** |
| L1 | Discharge point 6 (Biomax Irrigation Area) | Biomax treated wastewater Irrigation area | Treated wastewater from Biomax sealed aerobic treatment unit. |
| L2 | Discharge point 7 (Lab Neutralisation Pit) | Seepage from unlined neutralisation pit. | Wastewater discharged from laboratory to pit to be chemically treated. |
| L3 | Gypsum Discharge point 3 | Outlet pipe into infiltration sump from Gypsum fuel facility and truckwash. | Wastewater from Gypsum fuel facility and truckwash triple interceptor. |

2.3.2 The Licensee shall not cause or allow point source emissions to land greater than the limits listed in Table 2.3.2

| Table 2.3.2: Point source emission limits to land | | | |
|---|---|---|---|
| **Emission point reference** | **Parameter** | **Limit (including units)** | **Averaging period** |
| L3 | Total Recoverable Hydrocarbons | 15 mg/L | Spot sample |

### 2.4 Fugitive emissions

2.4.1 The Licensee shall ensure fugitive emissions are managed in accordance with the documents, or parts of documents, specified in Table 2.4.1.

**Table 2.4.1: Management Plans**

| Management Plan Reference | Parts | Date of Document |
|---|---|---|
| Gypsum Operations Dust Management Plan | All | 30 September 2015 |

# 3 Monitoring

### 3.1 General monitoring

3.1.1 The Licensee shall ensure that:
(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
(b) all wastewater sampling is conducted in accordance with AS/NZS 5667.10;
(c) all surface water sampling is conducted in accordance with AS/NZS 5667.4, AS/NZS 5667.6 or AS/NZS 5667.9 as relevant; and
(d) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured.

3.1.2 The Licensee shall ensure that:
(a) quarterly monitoring is undertaken at least 45 days apart; and
(b) six monthly monitoring is undertaken at least 5 months apart.

### 3.2 Monitoring of point source emissions to surface water

3.2.1 The Licensee shall undertake the monitoring in Table 3.2.1 according to the specifications in that table.

**Table 3.2.1: Monitoring of point source emissions to surface water**

| Emission point reference | Parameter | Units | Frequency |
|---|---|---|---|
| SW4 | Total Recoverable Hydrocarbons | mg/L | Quarterly |
| SW5 | | | |
| SW6 | Chloride, sulfate, sodium, magnesium, potassium, calcium, total suspended solids, arsenic, beryllium, boron, cadmium, chromium, copper, fluoride, lead, mercury, nickel, total nitrogen, total phosphorus | mg/L | Six monthly |
| SW7 | | | |
| | Electrical conductivity | µS/cm | |
| | pH | - | |

### 3.3 Monitoring of emissions to land

3.3.1 The Licensee shall undertake the monitoring in Table 3.3.1 according to the specifications in that table.

**Table 3.3.1: Monitoring of emissions to land**

| Emission point reference | Parameter | Units | Frequency |
|---|---|---|---|
| L3 | Total Recoverable Hydrocarbons | mg/L | Quarterly |

# 4 Information

## 4.1 Records

4.1.1 All information and records required by the Licence shall:
- (a) be legible;
- (b) if amended, be amended in such a way that the original and subsequent amendments remain legible or are capable of retrieval;
- (c) except for records listed in 4.1.1(d) be retained for at least 6 years from the date the records were made or until the expiry of the Licence or any subsequent licence; and
- (d) for those following records, be retained until the expiry of the Licence and any subsequent licence:
  - (i) off-site environmental effects; or
  - (ii) matters which affect the condition of the land or waters.

4.1.2 The Licensee shall ensure that:
- (a) any person left in charge of the Premises is aware of the conditions of the Licence and has access at all times to the Licence or copies thereof; and
- (b) any person who performs tasks on the Premises is informed of all of the conditions of the Licence that relate to the tasks which that person is performing.

4.1.3 The Licensee shall complete an Annual Audit Compliance Report indicating the extent to which the Licensee has complied with the conditions of the Licence, and any previous licence issued under Part V of the Act for the Premises for the previous annual period.

4.1.4 The Licensee shall implement a complaints management system that as a minimum records the number and details of complaints received concerning the environmental impact of the activities undertaken at the Premises and any action taken in response to the complaint.

## 4.2 Reporting

4.2.1 The Licensee shall submit to the CEO an Annual Environmental Report within 120 calendar days after the end of the annual period. The report shall contain the information listed in Table 4.2.1 in the format or form specified in that table.

**Table 4.2.1: Annual Environmental Report**

| Condition or table (if relevant) | Parameter | Format or form[1] |
|---|---|---|
| - | Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken | None specified |
| Table 3.2.1 | Discharge to water monitoring results | |
| Table 3.3.1 | Discharge to land monitoring results | |
| 4.1.3 | Compliance | Annual Audit Compliance Report (AACR) |
| 4.1.4 | Complaints summary | None specified |

Note 1: Forms are in Schedule 2

4.2.2 The Licensee shall ensure that the Annual Environmental Report also contains:
- (a) an assessment of the information contained within the report against previous monitoring results and Licence limits; and
- (b) a list of any original relevant monitoring reports submitted to the Licensee from third parties for the annual period and make these reports available on request.

## 4.3 Notification

4.3.1 The Licensee shall ensure that the parameters listed in Table 5.3.1 are notified to the CEO in accordance with the notification requirements of the table.

**Table 5.3.1: Notification requirements**

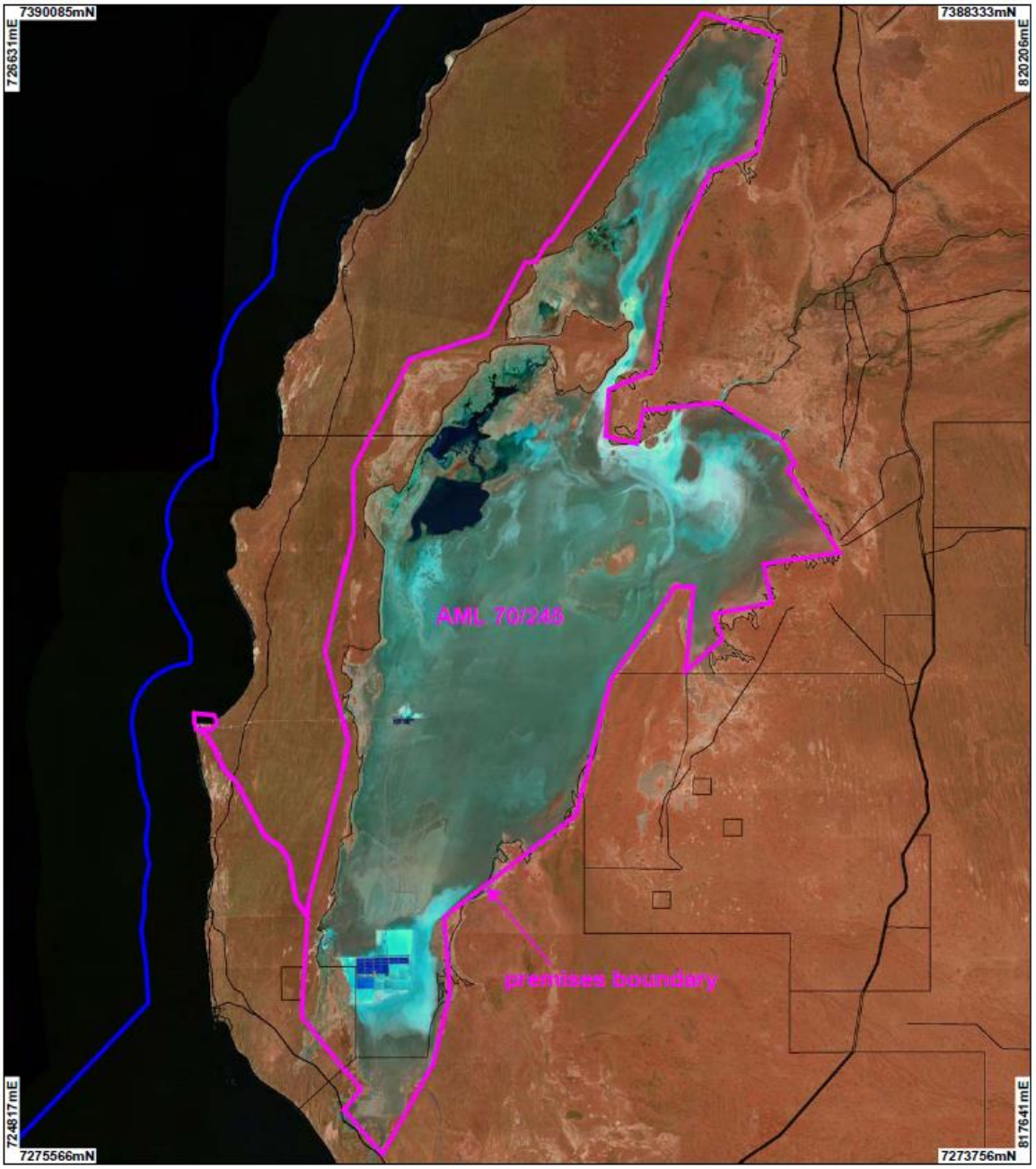
| Condition or table (if relevant) | Parameter | Notification requirement[1] | Format or form[2] |
|---|---|---|---|
| 2.1.1 | Breach of any limit specified in the Licence | Part A: As soon as practicable but no later than 5pm of the next usual working day<br><br>Part B: As soon as practicable | N1 |

Note 1: Notification requirements in the Licence shall not negate the requirement to comply with s72 of the Act.
Note 2: Forms are in Schedule 2

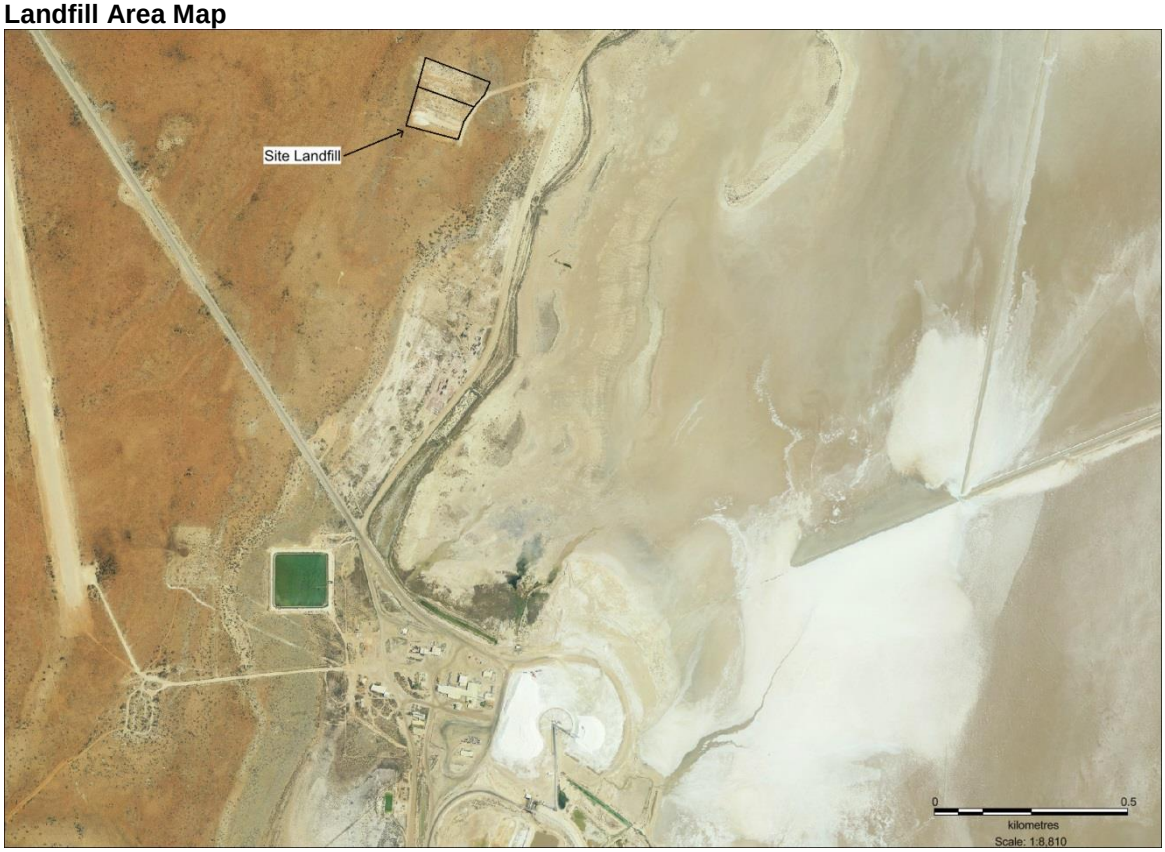
# Schedule 1: Maps

**Premises map**

The Premises is shown in the map below. The pink line depicts the Premises boundary.



**Landfill Area Map**



**Maps of emission points**

The locations of the emission points defined in Tables 2.2.1, 2.3.1 are shown below.

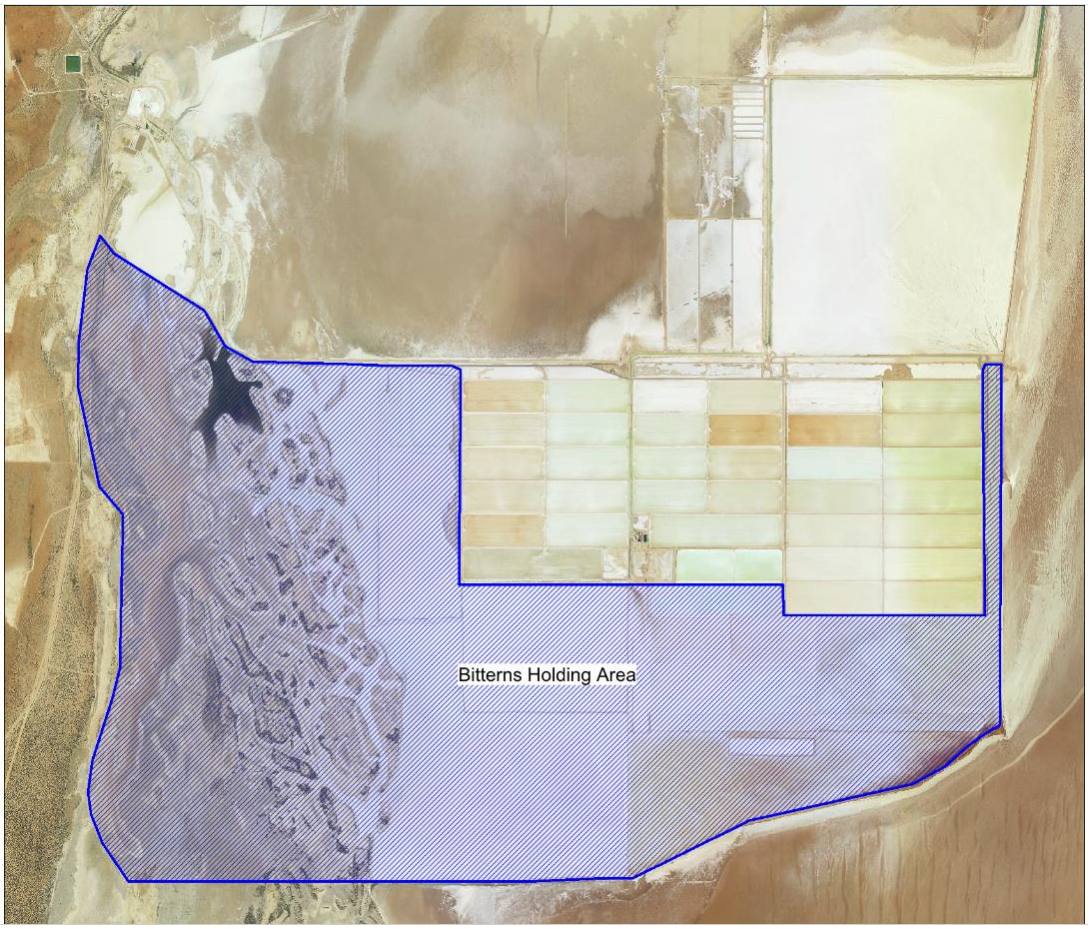

Discharge Point 4
Truckwash, Lube Bay & RO Discharge Point
Laboratory Building
Discharge Point 7
Lab Neutralisation Pit
Discharge Point 6
Biomax Irrigation Area
0
0.05
kilometres
Scale: 1:1,142


7319292mN
7319278mN
742787mE
743628mE
Discharge Point 5
(Discharge from truck-wash bay)
CAPE CUVIER RD
742770mE
743608mE
7318261mN
7318246mN
LEGEND
Road Centrelines
Mining Tenements
Yilmia 1.4m Orthomosaic - Landgate 2003
Kalgoorlie 50cm Orthomosaic - Landgate 2006
Image Index
Recently added
Coverage
Port Hedland Townsite 20cm Orthomosaic - Landgate 2002
Carnarvon 1.4m Orthomosaic - Landgate 2002
Macleod 1.4m Orthomosaic - Landgate 2002
Carnarvon to Coral Bay 1.4m Orthomosaic - Landgate 1999
N
Scale 1:4590
(Approximate when reproduced at A4)
Geocentric Datum Australia 1994
Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.
Prepared by: christineda
Prepared for:
Date: 25/08/2015 3:26:36 PM
Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.
Government of Western Australia
Department of Environment Regulation
WA Crown Copyright 2002
* Project Data. This data has not been quality assured. Please contact map author for details.


Discharge Point 1
Dicharge Point 3
Gypsum Stockpile 1
Bore Water Holding Pond
RO/Bore Water Pipeline
Discharge Point 2
Existing Gypsum Stockpiles
Office & Reverse Osmosis Plant
Gypsum Haul Road
Gypsum Stockpile 8
Existing Drainage System
Gypsum Access Road
Existing Dredge Ponds
0
1,500
kilometres
Scale: 1:18,550

**Map of containment infrastructure locations**

The location of the containment infrastructure areas as defined in Table 1.3.3 are shown below



# Schedule 2: Reporting & notification forms

These forms are provided for the proponent to report monitoring and other data required by the Licence. They can be requested in an electronic format.

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## ANNUAL AUDIT COMPLIANCE REPORT PROFORMA

## SECTION A

**LICENCE DETAILS**

| | |
|---|---|
| Licence Number: | Licence File Number: |
| Company Name:<br><br>Trading as: | ABN: |
| Reporting period:<br><br>_____ to _____ | |

**STATEMENT OF COMPLIANCE WITH LICENCE CONDITIONS**

1. Were all conditions of the 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 initialled by the person(s) who signs Section C of this Annual Audit Compliance Report (AACR).

Initial:

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# 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 DER?: | |
| ☐ Yes ☐ Reported to DER verbally<br>Date _____<br>☐ Reported to DER in writing<br>Date _____ | ☐ No |
| d) Has DER taken, or finalised any action in relation to the non compliance?: | |
| | |
| e) Summary of particulars of the 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 initialled by the person(s) who signs Section C of this AACR

Initial:

# SECTION C

## SIGNATURE AND CERTIFICATION

This Annual Audit Compliance Report (AACR) must only be signed by a person(s) with legal authority to sign it. The ways in which the AACR 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 AACR 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 | □ | by the individual licence holder, or |
| | □ | by a person approved in writing by the Chief Executive Officer of the Department of Environment Regulation to sign on the licensee's behalf. |
| A firm or other unincorporated company | □ | by the principal executive officer of the licensee; or |
| | □ | 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 Regulation. |
| A corporation | □ | by affixing the common seal of the licensee in accordance with the *Corporations Act 2001*; or |
| | □ | by two directors of the licensee; or |
| | □ | by a director and a company secretary of the licensee, or |
| | □ | if the licensee is a proprietary company that has a sole director who is also the sole company secretary – by that director, or |
| | □ | by the principal executive officer of the licensee; or |
| | □ | 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 Regulation. |
| A public authority (other than a local government) | □ | by the principal executive officer of the licensee; or |
| | □ | 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 Regulation. |
| a local government | □ | by the chief executive officer of the licensee; or |
| | □ | 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: _____

NAME:
(printed) _____

POSITION: _____

DATE: _____/_____/_____

SIGNATURE: _____

NAME:
(printed) _____

POSITION: _____DATE:
_____/_____/_____

SEAL (if signing under seal)
Licence: L7178/1997/11 Licensee:

Form: N1 Date of breach:

**Notification of detection of the breach of a limit or any failure or malfunction of any pollution control equipment or any incident which has caused, is causing or may cause pollution.**

These pages outline the information that the operator must provide.
Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

Part A

| | |
|---|---|
| Licence Number | |
| Name of operator | |
| Location of Premises | |
| Time and date of the detection | |

| **Notification requirements for the breach of a limit** | |
|---|---|
| Emission point reference/ source | |
| Parameter(s) | |
| Limit | |
| Measured value | |
| Date and time of monitoring | |
| Measures taken, or intended to be taken, to stop the emission | |

**Part B**

| | |
|---|---|
| Any more accurate information on the matters for notification under Part A. | |
| Measures taken, or intended to be taken, to prevent a recurrence of the incident. | |
| Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission. | |
| The dates of any previous N1 notifications for the Premises in the preceding 24 months. | |

| | |
|---|---|
| Name | |
| Post | |
| Signature on behalf of | |
| Date | |

Government of Western Australia
Department of Environment Regulation

# Decision Document

## *Environmental Protection Act 1986,* Part V

## Proponent: Dampier Salt Limited

## Licence: L7178/1997/11

| | |
|---|---|
| **Registered office:** | 37 Belmont Avenue<br>BELMONT WA 6104 |
| **ACN:** | 008 706 590 |
| **Premises address:** | Dampier Salt – Lake Macleod<br>AML 70/245, Blowholes Road<br>CARNARVON WA 6701 |
| **Issue date:** | Thursday, 1 October 2015 |
| **Commencement date:** | Sunday, 4 October 2015 |
| **Expiry date:** | Friday, 3 October 2025 |

**Decision**

Based on the assessment detailed in this document the Department of Environment Regulation (DER), has decided to issue a licence. DER considers that in reaching this decision, it has taken into account all relevant considerations and legal requirements and that the Licence and its conditions will ensure that an appropriate level of environmental protection is provided.

| | |
|---|---|
| Decision Document prepared by: | Christine Pustkuchen<br>Licensing Officer |
| Decision Document authorised by: | Alana Kidd<br>Delegated Officer |

# Contents



# 1 Purpose of this Document

This decision document explains how DER has assessed and determined the application and provides a record of DER's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DER's assessment and decision making under Part V of the *Environmental Protection Act 1986.* Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.

# 2 Administrative summary

| **Administrative details** | | |
|---|---|---|
| Application type | Works Approval ☐<br>New Licence ☐<br>Licence Reissue ☒<br>Works Approval amendment ☐ | |
| Activities that cause the premises to become prescribed premises. | **Category number(s)** | **Assessed design capacity** |
| | 14 | 3 100 000 tonnes per annum |
| | 58 | 50 000 tonnes per day |
| | 58A | 84 000 tonnes per day |
| | 64 | 60 tonnes per annum |
| | 80 | 500 000 tonnes per annum |
| Application verified<br>Application fee paid | Date: 19/08/2015<br>Date: 31/08/2015 | |
| Works Approval has been complied with<br>Compliance Certificate received | Yes☒ No☐ N/A☐<br>Yes☒ No☐ N/A☐ | |
| Commercial-in-confidence claim | Yes☐ No☒ | |
| Commercial-in-confidence claim outcome | | |
| Is the proposal a Major Resource Project? | Yes☐ No☒ | |
| Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986*? | Yes☐ No☒ | Referral decision No:<br>Managed under Part V ☐<br>Assessed under Part IV ☐ |

| | | |
|---|---|---|
| Is the proposal subject to Ministerial Conditions? | Yes☐ No☒ | Ministerial statement No:<br>EPA Report No: |
| Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the *Environmental Protection Act 1986*)? | Yes☐ No☒<br>Department of Water consulted Yes ☐ No ☐ | |
| Is the Premises within an Environmental Protection Policy (EPP) Area Yes☐ No☒<br>If Yes include details of which EPP(s) here. | | |
| Is the Premises subject to any EPP requirements? Yes☐ No☒<br>If Yes, include details here, eg Site is subject to $SO_2$ requirements of Kwinana EPP. | | |

# 3 Executive summary of proposal and assessment

The Lake MacLeod site has operated since the 1960's under the *Evaporites (Lake MacLeod) Agreement Act 1967*, Dampier Salt Limited took control of the premises in 1978. The premises is located within the Shire of Carnarvon and is approximately 50 kilometres north of Carnarvon. It is located on Mining tenement AML 70/245 which covers approximately 220 000 hectares of land, covering the majority of Lake MacLeod.

**Category 14 & 58A– Salt Manufacturing and bulk loading operation**
The saturated brine contained in Lake MacLeod is approximately 10 times saltier than normal seawater, eliminating the need for a series of concentration ponds normally required at other salt mines to evaporate water to reach "salting" point (sodium chloride saturation).

A collection ditch has been cut into the halite layer to recover brine from Lake MacLeod. The brine is pumped at an average rate of 55 cubic metres per minute from the collection ditch into 8.5 kms of transport channel to a common collection point. There are thirty three crystallisers, averaging 23 ha each, used for salt production. Once deposited in the crystallising ponds the brine is further evaporated and salt is deposited on top of a pre-formed floor of salt. Deposition is stopped by draining the remaining brine when about three quarters of the sodium chloride has been deposited and before other salts come out of solution in significant quantities. The residual brine is called bitterns and contains high concentrations of potassium, magnesium and other salts. Bitterns are discharged from the crystallisers into a holding pond on the lake's surface where the water is evaporated. The resulting solid bitterns represent a significant resource which is also harvested.

Harvesting of salt is carried out using a laser controlled salt cutter with an average capacity of 1000 tonnes per hour discharging directly into three 60 tonne trailers hauled by a prime mover. The harvested salt is then washed at the salt wash plant to remove impurities off the salt. Once washed the salt is stockpiled and allowed to drain for approximately 6 weeks for the moisture content to fall below 2.5 %. Once the salt has finished draining, it is hauled by road trains, 24 km to a 200 000 tonne stockpile at Cape Cuvier for shipment. Reclaim for ship loading is by dozers which push the salt into a hopper, which then feeds to a conveyor system under the stockpile. The conveyor system transports the salt to the ship loader which feeds the salt onto the vessel at the wharf.

The premises production capacity can vary significantly depending on weather conditions. Dampier Salt Limited wishes to increase the approved premises capacity by 200 000 tonnes per year from 2 900 000 to 3 100 000 tonnes per year as part of this reissue. The increase is due to the reinstatement

of crystalliser F1 in 2012 (no significant works were required for this increase and therefore was not subject to a works approval).

An increase in the approved capacity for category 58A – bulk material loading or unloading (salt) has also been assessed as part of this reissue. No additional works has been carried out. The maximum rate of the CV3 conveyor for the ship loader is 3500 SPT/hour, this equates to a maximum capacity of 84 000 tonnes per day. Due to the requirements to move ships during loading it is unlikely that the maximum capacity would be achieved and it is expected that approximately 77 000 tonnes per day will be shipped.

**Category 80 & 58- Gypsum Mining and bulk loading operation**
Dampier Salt Limited wishes to re-commence its Gypsum mining operation on a campaign basis over approximately 250 days. Gypsum mining is carried out on the premises by excavation of raw gypsum from the lake surface. This is achieved through using an excavator and truck mining method. As mobile equipment is used on the dry lake surface, mining is planned to be completed during the dry period when there is no flooding of the lake. Following excavation, heap leaching of the gypsum stockpiles occurs with sprinklers using bore and fresh water (the latter produced from bore water using a reverse osmosis plant at the gypsum facility) on existing gypsum leach pads. This washes sodium chloride (salt) minerals from the gypsum stockpiles to the required levels of less than 150 parts per million chloride. The gypsum is then transported to Cape Cuvier where it is stockpiled and shipped at an annual production rate of approximately 500 000 tonnes per annum.

The gypsum operation was originally operational, under Category 12, in 1997 until 2008 when it ceased. Due to a re-evaluation of the market for the gypsum product from Lake MacLeod, it is proposed to re-establish mining operations under Category 80 (W5269/2012/1). Category 80 has been added to the licence during this reissue. A change to the approved premises capacity for Category 58 – bulk material loading or unloading (other than salt) has been made as part of this reissue to correct an error on the previous licence version. The maximum capacity for category 58 should be 50 000 tonnes which is based on the maximum size ship used for Gypsum shipments.

**Category 64 - Landfill**
The Lake Macleod operation disposes of inert waste and tyres at a landfill area on the premises. Some putrescible waste, in the form of used timber, is also disposed of at the landfill. All other wastes, including putrescible from the offices and crib rooms, are sent off site to the Shire of Carnarvon landfill facility in Carnarvon. The landfill facility uses a deep trench of around 3 to 4 metres deep to dispose of waste.

# 4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987* and DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

| DECISION TABLE | | | |
|---|---|---|---|
| **Works Approval / Licence section** | **Condition number W = Works Approval L= Licence** | **Justification (including risk description & decision methodology where relevant)** | **Reference documents** |
| **General conditions** | L1.2 | Condition 1.2.1 requires pollution control and monitoring equipment to be maintained. This condition replaces condition 4 on the previous Licence.<br><br>Condition 1.2.2 requires the recovery and disposal of spills. This condition replaces Condition 9 and 11.<br><br>Condition 1.2.3 has been added to the Licence to replace conditions 2, 3 and 12, which relate to preventing stormwater run-off from becoming contaminated by the operations. Condition 1.2.3 will ensure that contaminated stormwater will be treated prior to disposal off-site.<br><br>Conditions relating to storage of environmentally hazardous chemicals such as fuel have been removed from the new format licence (i.e. old condition 5). This is as a result of a change in DER policy regarding the regulation of low risk environmentally hazardous chemical storage. | General provisions of the *Environmental Protection Act 1986.*<br><br>*Environmental Protection (Unauthorised discharges) Regulations 2004.* |
| **Premises operation** | L1.3 | Condition 1.3.1 sets out the process requirements for managing wastes produced and landfilled onsite. This condition replaces conditions 13 (waste acceptance), 15(i), 15(ii), 15(vi) (landfill operational requirements) and 16 (tyres).<br><br>Condition 1.3.2 sets out cover requirements at the landfill. This condition replaces conditions 15(iii) and 16(iv). | General provisions of the *Environmental Protection Act 1986.*<br><br>*Environmental* |

| DECISION TABLE | | | |
|---|---|---|---|
| **Works Approval / Licence section** | **Condition number W = Works Approval L= Licence** | **Justification (including risk description & decision methodology where relevant)** | **Reference documents** |
| | | Condition 1.3.3 relates to the management of windblown wastes. This condition replaces conditions 15(iv) and 15(v).<br><br>Condition 1.3.4 relates to fires at the landfill facility. This condition replaces condition 14.<br><br>Condition 1.3.5 has been added to the licence to ensure that bitterns are contained within the bitterns holding ponds onsite and is not discharged anywhere else. The bitterns holding ponds have been constructed in the same way as the site's processing ponds (crystallisers), where a section of the lake's surface has been enclosed with an earthen levee. Dampier Salt has stated that the water within the holding ponds is evaporated and the resulting solid bitterns are a significant resource which has been identified as meeting quality specification for a number of customers and has been harvested directly from the holding ponds for sale since 2013. As a result bitterns have not been considered a discharge as part of this reissue.<br><br>Hydrocarbon contaminated soil is treated onsite at a bioremediation facility. It is constructed on an old borrow pit area and has a compacted earthen floor and bund. A premises operation condition relating to soil remediation occurring within landform cells have been added to the licence (Condition 1.3.6). | *Protection (Unauthorised discharges) Regulations*<br><br>Contaminated Sites Management Series, Bioremediation of hydrocarbon-contaminated soils in Western Australia (Department of Environment, October 2004). |
| **Emissions general** | L2.1.1 | Descriptive limits will be set through conditions of the licence and therefore condition regarding recording and investigation of exceedances of limits has been included. | N/A |
| **Point source emissions to air including monitoring** | N/A. | There are no point source emissions to air from the premises. No specified conditions relating to point source emissions to air has been included in the licence. | N/A. |
| **Point source emissions to surface water** | | Condition 2.2.1 authorises discharge points to surface water (Lake MacLeod). This condition replaces condition 1 from the previous licence. Bitterns holding ponds have been removed as a discharge point (see premises operation section). Additional | General provisions of the *Environmental* |

| DECISION TABLE | | | |
|---|---|---|---|
| **Works Approval / Licence section** | **Condition number W = Works Approval L= Licence** | **Justification (including risk description & decision methodology where relevant)** | **Reference documents** |
| **including monitoring** | | discharge points have been added to ensure all previously approved discharges to surface water associated with the salt operations is captured by the licence. These discharge points are Discharge point 4 (Outlet pipe into Lake MacLeod from truck wash bay, Lube bay and RO plant at salt operations) and Discharge point 5 (outlet pipe into ocean from truck wash bay at Cape Cuvier.<br><br>Condition 3.2.1 set out monitoring required for discharge points 4 and 5 (monitoring of total recoverable hydrocarbons (TRH) in truck wash bay discharge into lake Macleod and ocean at Cape Cuvier). This condition replaces condition 18 on the previous licence version. The frequency of monitoring has been increased from six months to quarterly. This will ensure the monitoring results provide a more accurate description of the TRH level within the discharge.<br><br>Condition 2.2.2 has also been added to the licence to ensure the level of TRH within the wastewater discharges is below 15mg/L. This brings the licence in line with Dampier Salt's other similar licences (L7183 and L7182) and Water Quality Protection Note 68.<br><br>**Operation**<br>Two new discharge points to Lake MacLeod have been assessed as part of this reissue. Gypsum Discharge points 1 & 2 have arisen from the works approval for the reinstatement of the gypsum operations onsite.<br><br><u>Emission Description</u><br>*Emissions:*<br>• Discharge of wastewater from heap leach pads (at stockpile 1 and stockpile 8) into Lake MacLeod. Approximately 1600-2200m/day is discharged over the leaching period (6-8 months of the year) (discharge points 1 & 2).<br>• Hydrocarbon spills and leaks from mobile equipment to the lake surface.<br>*Impacts:* | *Protection Act 1986.*<br><br>*Environmental Protection (Unauthorised discharge) Regulations*<br><br>Application supporting documents<br><br>Water Quality Protection Note 68 Mechanical equipment washdown (Department of Water, March 2006). |

| DECISION TABLE | | | |
|---|---|---|---|
| **Works Approval / Licence section** | **Condition number W = Works Approval L= Licence** | **Justification (including risk description & decision methodology where relevant)** | **Reference documents** |
| | | • Impacts to fringing vegetation at the discharge point due to isolated localised flooding of the area.<br>• Impact to lake water quality from hydrocarbon spills<br>*Controls:*<br>• Photographic monitoring of heap leach pad leachate discharge areas to monitor impact;<br>• Refuelling of mobile equipment will be conducted by mobile trucks that are equipped with spill kits;<br>• Major servicing of equipment will not occur on the lake;<br>• No mining operations will be conducted during flood conditions reducing the risk of hydrocarbon spills reaching sensitive receptors such as the Northern Ponds; and<br>• All spills will be cleaned as per the Dampier Salt Hydrocarbon spill response procedure.<br><br><u>Risk Assessment</u><br>*Consequence*: Insignificant<br>*Likelihood*: Unlikely<br>*Risk Rating*: Low<br><br>Heap leaching will be undertaken with sprinklers and bore water and desalinated water supplied from the onsite reverse osmosis (RO) plant. The pads are located adjacent to Lake Macleod from which the gypsum is sourced and leached with local groundwater (mixed with water from RO plant). No chemicals or other materials are added to the process. The discharge consists of sodium chloride component of the extracted gypsum with the addition of saline groundwater and RO water and therefore has a lower salinity level than lake water however other parameters are expected to be similar. The discharge from the leaching pads is not considered to pose a significant environmental risk as the constituents of the leachate is expected to be similar to the receiving environment. All water from the facility is contained by the trench surrounding | |

| DECISION TABLE | | | |
|---|---|---|---|
| **Works Approval / Licence section** | **Condition number W = Works Approval L= Licence** | **Justification (including risk description & decision methodology where relevant)** | **Reference documents** |
| | | the pads which drain the water to the lake surface.<br><br>Dampier Salt has stated that no significant impacts were observed during the previous gypsum mining operation. To monitor the impacts of the discharge Dampier Salt propose to conduct quarterly photographic monitoring of the discharge area. Monitoring points will be established at the discharge point to cover areas of potential impact. The frequency of the photographic monitoring will be evaluated after two years of operation.<br><br>The use of excavators for mining gypsum will create potential for hydrocarbon spills on the lake surface. The management measures proposed by Dampier Salt will ensure that the risk to the local lake environment from hydrocarbon spills is low.<br><br><u>Regulatory Controls</u><br>Condition 3.2.1 has been added to the licence requiring Dampier Salt to undertake six monthly monitoring at the gypsum discharge points for the following parameters: chloride, sulfate, sodium, magnesium, potassium, calcium, total suspended solids, arsenic, beryllium, boron, cadmium, chromium, copper, fluoride, lead, mercury, nickel, total nitrogen, total phosphorus, electrical conductivity and pH. This will allow Dampier Salt to demonstrate that the constituents of the discharge is similar to the receiving lake environment as expected.<br><br><u>Residual Risk</u><br>*Consequence*: Insignificant<br>*Likelihood*: Unlikely<br>*Risk Rating*: Low | |
| **Point source emissions to groundwater including** | N/A. | There are no point source emissions to groundwater from the premises. No specified conditions relating to point source emissions to groundwater have been included in the licence. | N/A. |

| DECISION TABLE | | | |
|---|---|---|---|
| **Works Approval / Licence section** | **Condition number W = Works Approval L= Licence** | **Justification (including risk description & decision methodology where relevant)** | **Reference documents** |
| **monitoring** | | | |
| **Emissions to land including monitoring** | L2.3 | Condition 2.3.1 authorises discharges to land and has been added to the licence to ensure all previously approved discharges to land associated with the salt operations is captured by the licence. The new discharge points are; Discharge point 6 (Biomax treated wastewater Irrigation area), Discharge point 7 (seepage from unlined lab neutralisation pit) and Gypsum Discharge Point 3. Discharge points 6 & 7 have not been re-assessed as part of this reissue.<br><br>**Operation**<br>Discharges to land that have been assessed as part of this reissue relate to the new gypsum mining operation. This includes Gypsum Discharge Point 3.<br><br><u>Emission Description</u><br>*Emission:*<br>• Discharge of leachate from base of heap leaching pads and trenches to land;<br>• Spills and leaks of hydrocarbons; and<br>• Discharge of possible hydrocarbon contaminated stormwater/wash water to land from the gypsum fuel facility/truck wash into a sandy sump (Gypsum Discharge Point 3).<br><br>*Impact:* Contamination of soil and groundwater.<br>*Controls:*<br>• Appropriate design of heap leach pad base and trenches (compacted subsoils and in-situ material);<br>• Appropriate design of hydrocarbon storage area; and<br>• Treatment of hydrocarbon contaminated stormwater/truck wash water via a triple interceptor prior to discharge.<br><br><u>Risk Assessment</u><br>*Consequence*: Insignificant | General provisions of the *Environmental Protection Act 1986.*<br><br>*Environmental Protection (Unauthorised discharge) Regulations*<br><br>Application supporting documents<br><br>Water Quality Protection Note 68 Mechanical equipment washdown (Department of Water, March 2006). |

| DECISION TABLE | | | |
|---|---|---|---|
| **Works Approval / Licence section** | **Condition number W = Works Approval L= Licence** | **Justification (including risk description & decision methodology where relevant)** | **Reference documents** |
| | | *Likelihood*: Unlikely<br>*Risk Rating*: Low<br><br>The base of the heap leach pads have been constructed from compacted subsoils and in-situ material which has been built up with low grade gypsum material to ensure that there is minimal seepage from the heap leach pads. Under abnormal operations (base of pad malfunctions or high leachate load) seepage may occur from the base of the pad. Seepage from the base of the pads in not considered to pose a significant environmental risk as the nature of the leachate is similar to the lake water and groundwater within the receiving saline environment.<br><br>Hydrocarbons (diesel, oils, greases etc.) will be used during the mining and processing operations by light and heavy vehicles as well as miscellaneous equipment such as generators. All hydrocarbons will be stored in the fuel facility previously in use at the gypsum operation. All hydrocarbon storage and dispensing facilities have been constructed in compliance with Australian Standard 1940-2004. Waste oils are stored in a bunded facility and are removed from the site by a licensed carrier.<br><br>All contaminated stormwater that falls within the gypsum fuel facility and truck wash water is captured and treated via a triple interceptor prior (cleaned as required) to discharge to a sandy sump (Gypsum discharge point 3). The volumes of water discharged are expected to be minimal. The discharge location is within a sandy sump that previously received the concentrated discharge from the Reverse Osmosis plant. The sump also acts as a dam to capture any overflow from the artesian water storage dam.<br><br><u>Regulatory Controls</u><br>Condition 1.2.2 replaces existing conditions 9 & 11 to ensure all spills of environmentally hazardous materials are cleaned up as soon as practicable. | |

| DECISION TABLE | | | |
|---|---|---|---|
| **Works Approval / Licence section** | **Condition number W = Works Approval L= Licence** | **Justification (including risk description & decision methodology where relevant)** | **Reference documents** |
| | | Condition 3.3.1 has been added to the licence to include monitoring of the wastewater from Gypsum discharge point 3 (L3). A limit has also been added to the licence (condition 2.3.2) to ensure the level of total recoverable hydrocarbon within the wastewater discharge to the sump will be below 15 mg/L. This brings the licence in line with Dampier Salt's other similar licences (L7183 and L7182) and Water Quality Protection Note 68.<br><br>Residual Risk<br>*Consequence*: Insignificant<br>*Likelihood*: Unlikely<br>*Risk Rating*: Low | |
| **Fugitive emissions** | | **Operation**<br>Emission Description<br>*Emission:* Fugitive dust emission from gypsum stockpile at Cape Cuvier port and from levees and haul roads.<br>*Impact:* Nuisance dust potentially impacting on the marine environment. Reduced visual amenity with dust clouds visible from long distances over water. There are no nearby residences, closest being 10 km away.<br>*Controls:* Dampier Salt Ltd has committed to undertaking the following dust management measures at the gypsum stockpile;<br>• Schedule gypsum haulage (uncovered trucks) and stockpiling at Cape Cuvier around the arrival of ships (to minimise stockpiling time);<br>• Transport just enough material to load onto the ship so no long term stockpiling of gypsum;<br>• Target loading and shipping to the lowest wind speed months where practicable;<br>• As much as practicable, hauling, stacking and ship-loading of gypsum will be scheduled to occur in the lowest wind-speed months of 1 April to 1 September | Gypsum Operations Dust Management Plan, doc number JA-MPL-1462<br><br>General provisions of the *Environmental Protection Act 1986.*<br><br>Application supporting documents |

| DECISION TABLE | | | |
|---|---|---|---|
| **Works Approval / Licence section** | **Condition number W = Works Approval L= Licence** | **Justification (including risk description & decision methodology where relevant)** | **Reference documents** |
| | | (there is a weather station on site);<br>• During transporting and stockpiling, gypsum ships will, as much as is practicable be scheduled consecutively at Cape Cuvier;<br>• Gypsum operations will also be reduced or halted at the discretion of the Production Supervisor if dust levels become excessive due to high wind speeds;and<br>• Water cannot be used for dust suppression on the stockpile due to the moisture requirement of the gypsum product.<br><br><u>Risk Assessment</u><br>*Consequence:* Minor<br>*Likelihood*: Unlikely<br>*Risk Rating:* Moderate<br><br>Along with the proposed dust management controls and the distance to sensitive receptors (Quobba Homestead, which is approximately 10 km west of the salt facility and 20 km south of the port facility at Cape Cuvier) it is unlikely that dust emissions will have a significant impact on the surrounding environment.<br><br>A Marine Impact Assessment was conducted at Lake MacLeod in 2010 by consultants MScience. The purpose of this study was to assess the level of impact wind derived gypsum has on the local marine environment at Cape Cuvier Port. The study concluded that it appears unlikely that the marine environment at Cape Cuvier has been significantly impacted by the gypsum deposited into the local marine environment from wind erosion off the existing gypsum stockpile. Consultants MScience stated that as the natural mined gypsum of Lake McLeod has only trace amounts of other contaminants of concern (e.g. copper, chromium and lead), well below guideline levels (e.g. ANZECC and NAGD); it is unlikely that contamination has occurred. The lack of influence is also evidenced by an observed 'healthy' coral habitat within the reef zone found at the base of the Cape Cuvier cliffs within the port area. | |

| DECISION TABLE | | | |
|---|---|---|---|
| **Works Approval / Licence section** | **Condition number W = Works Approval L= Licence** | **Justification (including risk description & decision methodology where relevant)** | **Reference documents** |
| | | This assessment supports the assumption that stockpiling of gypsum prior to shiploading from the new gypsum operation will not have a significant impact on the local marine environment.<br><br>Regulatory Controls<br>Condition 17 on the old format Licence has been removed from the licence. This condition required photographs to be taken on a quarterly basis at 5 locations at Cape Cuvier to monitor the impact of dust from the existing gypsum stockpile on the surrounding marine environment. These photographs have not been useful in determining the impact of dust on the environment at the Cape and therefore this condition has been removed from the licence.<br><br>Fugitive dust conditions 6, 7 and 8 on the previous licence have been removed from the licence. These conditions have been replaced by Condition 2.4.1. Dampier Salt has committed to implementing their internal dust management plan (Gypsum Operations Dust Management Plan, doc number JA-MPL-1462) to ensure dust emission do not significantly impact the local environment. Condition 2.4.1 has been added to the licence requiring Dampier Salt to comply with their Dust Management plan at all times.<br><br>Residual Risk<br>*Consequence:* Minor<br>*Likelihood*: Unlikely<br>*Risk Rating:* Moderate | |
| **Odour** | N/A. | There are no odour emissions from the premises. No specified conditions relating to odour emissions have been included in the licence. | N/A. |
| **Noise** | N/A. | **Operations**<br>Emission Description<br>*Emission:* Noise emissions from mobile equipment such as excavators at Lake MacLeod, loading and unloading activities at the gypsum operation and Cape Cuvier. | Environmetnal Protection (Noise) Regulations 1997 |

| DECISION TABLE | | | |
|---|---|---|---|
| **Works Approval / Licence section** | **Condition number W = Works Approval L= Licence** | **Justification (including risk description & decision methodology where relevant)** | **Reference documents** |
| | | *Impact:* Nuisance noise impacting nearby sensitive receptors.<br>*Controls:* Seperation distance from sensitive receptors.<br><br>Risk Assessment<br>*Consequence*: Insignificant<br>*Likelihood*: Unlikely<br>*Risk Rating*: Low<br><br>Due to the gypsum mining operation occurring on a campaign basis (6-8 months of the year) and the distance to nearby sensitive receptors (12km away from Quobba Station) it is unlikely that noise emissions will have a significant impact on the local environment.<br><br>Regulatory Controls<br>No specified conditions regarding noise emission are required to be added to the licence. Dampier salt will be requied to comply with the Environmental Protection (Noise) Regulations 1997.<br><br>Residual Risk<br>*Consequence*: Insignificant<br>*Likelihood*: Unlikely<br>*Risk Rating*: Low | |
| **Monitoring general** | L3.1.1-3.1.4 | Condition 3.1.1 are included on licences where monitoring is required. This condition replaces Conditions 19 and 20 on the previous licence.<br><br>Condition 3.1.2-3.1.4 are conditions that are included on licences where emission monitoring and ambient quality monitoring is required. | Australian Standard AD/NZS 5667.1 – Water Quality Sampling – Guidance on the Design of sampling, |

| DECISION TABLE | | | |
|---|---|---|---|
| **Works Approval / Licence section** | **Condition number W = Works Approval L= Licence** | **Justification (including risk description & decision methodology where relevant)** | **Reference documents** |
| | | | programs, sampling techniques and the preservation and handling of samples. |
| **Monitoring of inputs and outputs** | N/A. | Monitoring requirements for inputs and outputs have not been re-assessed as part of this reissue. As the previous Licence did not have conditions requiring input and output monitoring no specified conditions have been included in this section. | N/A. |
| **Process monitoring** | N/A. | Monitoring requirements for process monitoring have not been re-assessed as part of this reissue. As the previous Licence did not have conditions requiring input and output monitoring no specified conditions have been included in this section. | N/A. |
| **Ambient quality monitoring** | L3.3.1 | No Ambient quality monitoring conditions are required to be added to the licence. Condition 17, which required photographs to be taken on a quarterly basis at 5 locations at Cape Cuvier to monitor the impact of dust from the existing gypsum stockpile on the surrounding marine environment, has been removed from the licence. These photographs have not been useful in determining the impact of dust on the environment at the Cape and therefore are unnecessary. | General provisions of the *Environmental Protection Act 1986.*<br><br>*Environmental Protection (Unauthorised discharges) Regulations 2004* |
| **Meteorological monitoring** | N/A. | Monitoring requirements for meteorological monitoring have not been re-assessed as part of this reissue. As the previous Licence did not have conditions requiring meteorological monitoring no specified conditions have been included in this section. | N/A. |
| **Improvements** | N/A. | No improvement conditions are required to be added to the licence. | N/A. |
| **Information** | L4 | Condition 4.2.1 and 4.2.2 relates to the requirement of an Annual Environmental Report (AER) (which includes the Annual Audit Compliance report (AACR)) to be | N/A. |

| DECISION TABLE | | | |
|---|---|---|---|
| **Works Approval / Licence section** | **Condition number W = Works Approval L= Licence** | **Justification (including risk description & decision methodology where relevant)** | **Reference documents** |
| | | submitted at the end of the annual period. This Condition replaces Conditions 21(a), 21(b) and 22 of the previous Licence.<br><br>Condition 4.3.1 relates to the notification of a licence limit to the CEO. | |
| **Licence Duration** | N/A. | As emissions have been re-assessed it is considered appropriate to extend the licence duration to 10 years. DER has considered licence duration consistent with its guidance statement: *Licence Duration*, DER, May 2015 and determined that the licence will be issued for a period of 10 years. | Guidance statement: *Licence duration,* DER, May 2015 |

# 5 Advertisement and consultation table

| Date | Event | Comments received/Notes | How comments were taken into consideration |
|---|---|---|---|
| 22/09/2015 | Proponent sent a copy of draft instrument. | Response to questions within documents received. | Responses noted and changes made where applicable |

# 6 Risk Assessment

*Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management*

## Table 1: Emissions Risk Matrix

| Likelihood | Consequence | | | | |
|---|---|---|---|---|---|
| | Insignificant | Minor | Moderate | Major | Severe |
| Almost Certain | Moderate | High | High | Extreme | Extreme |
| Likely | Moderate | Moderate | High | High | Extreme |
| Possible | Low | Moderate | Moderate | High | Extreme |
| Unlikely | Low | Moderate | Moderate | Moderate | High |
| Rare | Low | Low | Moderate | Moderate | High |