



# Licence

## *Environmental Protection Act 1986, Part V*

---

**Licensee:**           **Kemerton Silica Sand Pty Ltd**

**Licence:**           **L6593/1995/8**

---

**Registered office:**   5/363-367 Albany Hwy  
VICTORIA PARK WA 6100

**ACN:**               067 603 552

**Premises address:**   Kemerton Silica Sand mine  
Rhodes Rd  
WOKALUP WA 6221  
Being Lot 32 on Diagram 63554 and Lot 501 on Diagram 75018 as  
depicted in Schedule 1.

**Issue date:**           Thursday, 14 March 2013

**Commencement date:** Thursday, 21 March 2013

**Expiry date:**           Monday, 20 March 2017

**Prescribed premises category**

Schedule 1 of the *Environmental Protection Regulations 1987*

Category number	Category description	Category production or design capacity	Premises production or design capacity
5	Processing or beneficiation of metallic or non-metallic ore: premises on which – (a) Metallic or non-metallic ore is crushed, ground, milled or otherwise processed; (b) Tailings from metallic or non-metallic ore are reprocessed; or (c) Tailings or residue from metallic or non-metallic ore are discharged into a containment cell or dam.	50,000 tonnes or more per year	1,400,000 tonnes per year

**Conditions**

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

Date signed: 17 March 2016

.....  
Tim Gentle  
Manager – Industry Regulation (Resource Industries)  
Officer delegated under section 20  
of the *Environmental Protection Act 1986*



## Contents

Licence	1
Contents	2
Introduction	2
Licence conditions	5
1 General	5
2 Emissions	6
3 Monitoring	7
4 Improvements	Error! Bookmark not defined.
5 Information	8
Schedule 1: Maps	10
Schedule 2: Reporting & notification forms	11

## 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. Operating without a licence is an offence under the Act.

### 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

Kemerton Silica Sand is a sand dredging mine located 35 km north-east of Bunbury and immediately north of the Kemerton Industrial Park buffer zone. The mine was established in 1995 under Ministerial Statement 366, with extensions to the mine area approved under Statement 703 in 2005 and Statement 916 in 2012. The nearest sensitive receptors are single rural dwellings located approximately 4 km east and north-east of the site.

The mining operation utilises a suction cutter dredge, from which the sand slurry is pumped to a run-of-mine (ROM) storage area, where it is deslimed and stockpiled. Dewatered sand from the ROM stockpiles is fed into a processing plant where it is screened, washed and classified. Processed sand is stockpiled by cyclones and subsequently transported by truck to the Port of Bunbury for export.

The main emission involves discharge of ROM stacker overflow and process tailings to the dredge pond. As the mine is situated on freehold land released prior to 1899, the *Mining Act 1978* does not apply and environmental impacts associated with the mining activity cannot be managed through mining tenement conditions. As such, an environmental management plan and environmental commitments required by Ministerial Statement 366 are used to control pollution, monitor and manage EPP wetlands to maintain their ecosystem function and values and rehabilitation at the Premises.

**This Licence is the result of an amendment to extend the expiry date by 12 months, to allow DER to complete a detailed licence review and discuss proposed changes with KSS. In addition, conditions deemed redundant by DER have been removed for consistency purposes.**

The instruments issued for the Premises since the establishment of the mine in 1995 are:

Instrument log		
Instrument	Issued	Description
W1232	17/05/1995	Works approval issued for mine establishment. Issued to Gwalia Consolidation Ltd.
L6593	22/05/1996	First operating licence. Issued to Gwalia Consolidated Ltd.
L6593/1	04/07/1997	Licence reissue. Throughput amended to reflect that approved in Ministerial Statement 366.
W2595	24/11/1998	Works approval for the construction of a second sand processing module and stockpile. Issued to Sons of Gwalia Ltd.
L6593/3	24/11/1998	Licence reissue.
L6593/3	12/05/1999	Licence reissue.
L6593	19/03/2001	Amendment to change occupier to Kemerton Silica Sand Pty Ltd.
L6593/1	21/03/2002	Licence reissue.
L6593/7	21/03/2003	Licence reissue.
L6593/3	15/03/2004	Licence reissue.
L6593/4	10/03/2005	Licence reissue. First non-annual licence, issued for 5 years.
L6593/1995/7	18/03/2010	Licence reissue. Issued for 3 years.
L6593/1995/8	14/03/2013	Licence reissue and conversion to new REFIRE format.
L6593/1995/8	20/03/2014	Licence amendment to give effect to the Minister's 14 January 2014 appeal determination.
L6593/1995/8	17/03/2016	Licence amendment to extend the expiry date for a further 12 months, to allow time for detailed licence review and consultation process. Redundant conditions removed.



### **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*;

**'AHD'** means the Australian height datum;

**'annual period'** means the inclusive period beginning 1 October the previous year and ending on 30 September in that year;

**'AS/NZS 5667.1'** means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples*;

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

**'averaging period'** means the time over which a limit or target is measured or a monitoring result is obtained;

**'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](mailto:info@der.wa.gov.au)

**'Licence'** means this Licence numbered L6593/1995/8 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;

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

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

**'spot sample'** means a discrete sample representative at the time and place at which the sample is taken; and

**'µS/cm'** means microsiemens per centimetre.



- 1.1.3 Any reference to an Australian or other standard in the Licence means the relevant parts of 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.

## 1.2 Premises operation

- 1.2.1 The Licensee shall ensure that process overflow and tailings are only discharged into the infrastructure detailed in Table 1.2.1.

**Table 1.2.1: Containment infrastructure**

Infrastructure	Material	Infrastructure requirements
Dredge pond	ROM stacker overflow and process tailings	Nil

- 1.2.2 The Licensee shall manage the dredge pond such that:
- (a) a minimum top of embankment freeboard of 500 mm is maintained;
  - (b) overtopping does not occur except as a result of an extreme rainfall event (greater than 1 in 10 year event of 72 hours duration); and
  - (c) groundwater mounding is less than 1m from standing ground level.
- 1.2.3 The Licensee shall:
- (a) undertake inspections as detailed in Table 1.2.2;
  - (b) where any inspection identifies that an appropriate level of environmental protection is not being maintained, take corrective action to mitigate adverse environmental consequences as soon as practicable; and
  - (c) maintain a record of all inspections undertaken.

**Table 1.2.2: Inspection of infrastructure**

Scope of inspection	Type of inspection	Frequency of inspection
Residue pipelines	Visual integrity	Daily
Embankment freeboard	Visual to confirm required freeboard capacity is available	

## 2 Emissions

### 2.1 General

- 2.1.1 The Licensee shall record and investigate the exceedance of any descriptive or numerical limit or target 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 it is done so in accordance with the conditions of this licence.

**Table 2.2.1: Emission points to surface water**

Emission point reference	Description	Source including abatement
W1	Discharge pipes to dredge pond	ROM stacker overflow and process tailings



- 2.3.2 The Licensee shall target point source emissions to surface water to the levels specified in Table 2.3.2.

Table 2.3.2: Point source emission targets to surface water			
Emission point reference	Parameter	Target (including units)	Averaging period
W1	Total dissolved salts	≤ 600 mg/L	Spot sample
	Total acidity	≤ 50 mg/L	
	Total alkalinity	≥ 30 mg/L	

## 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 surface water sampling is conducted in accordance with AS/NZS 5667.4; and
  - (c) 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) monthly monitoring is undertaken at least 15 days apart;
  - (b) quarterly monitoring is undertaken at least 45 days apart;
  - (c) six monthly monitoring is undertaken at least 5 months apart; and
  - (d) annual monitoring is undertaken at least 9 months apart.
- 3.1.3 The Licensee shall ensure that all monitoring equipment used on the Premises to comply with the conditions of this Licence is calibrated in accordance with the manufacturer's specifications.
- 3.1.4 The Licensee shall, where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements, bring these issues to the attention of the CEO accompanied with a report comprising details of any modifications to the methods.

### 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
W1	Volumetric flow rate	m³/d	Monthly
	pH	pH unit	
	Electrical conductivity @ 25°C	µS/cm	
	Total dissolved salts	mg/L	
	Total acidity		
	Total alkalinity		





## 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 5.1.1(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 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.
- 4.1.3 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 31 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 <sup>1</sup>
-	Summary of any failure or malfunction of any pollution control equipment or any incidents that have occurred during the year and any action taken	None specified
-	A copy of the annual Groundwater Monitoring Summary required by Licence to Take Water GWL60367	
5.1.3	Compliance	AACR
5.1.4	Complaints summary	None specified
Table 3.2.1	Volumetric flow rate, pH, electrical conductivity, total dissolved salts, total acidity	WR1

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/or targets; and
  - (b) a list of any original monitoring reports submitted to the Licensee from third parties for the annual period and make these reports available on request.
- 4.2.3 The Licensee shall submit the information in Table 4.2.3 to the CEO according to the specifications in that table.

Table 4.2.3: Non-annual reporting requirements				
Condition or table (if relevant)	Parameter	Reporting period	Reporting date (after end of the reporting period)	Format or form <sup>1</sup>
Table 2.3.2	Target exceedances	Quarterly	28 calendar days	ET1





Note 1: Forms are in Schedule 2

### 4.3 Notification

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

Table 4.3.1: Notification requirements			
Condition or table (if relevant)	Parameter	Notification requirement <sup>1</sup>	Format or form <sup>2</sup>
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.  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

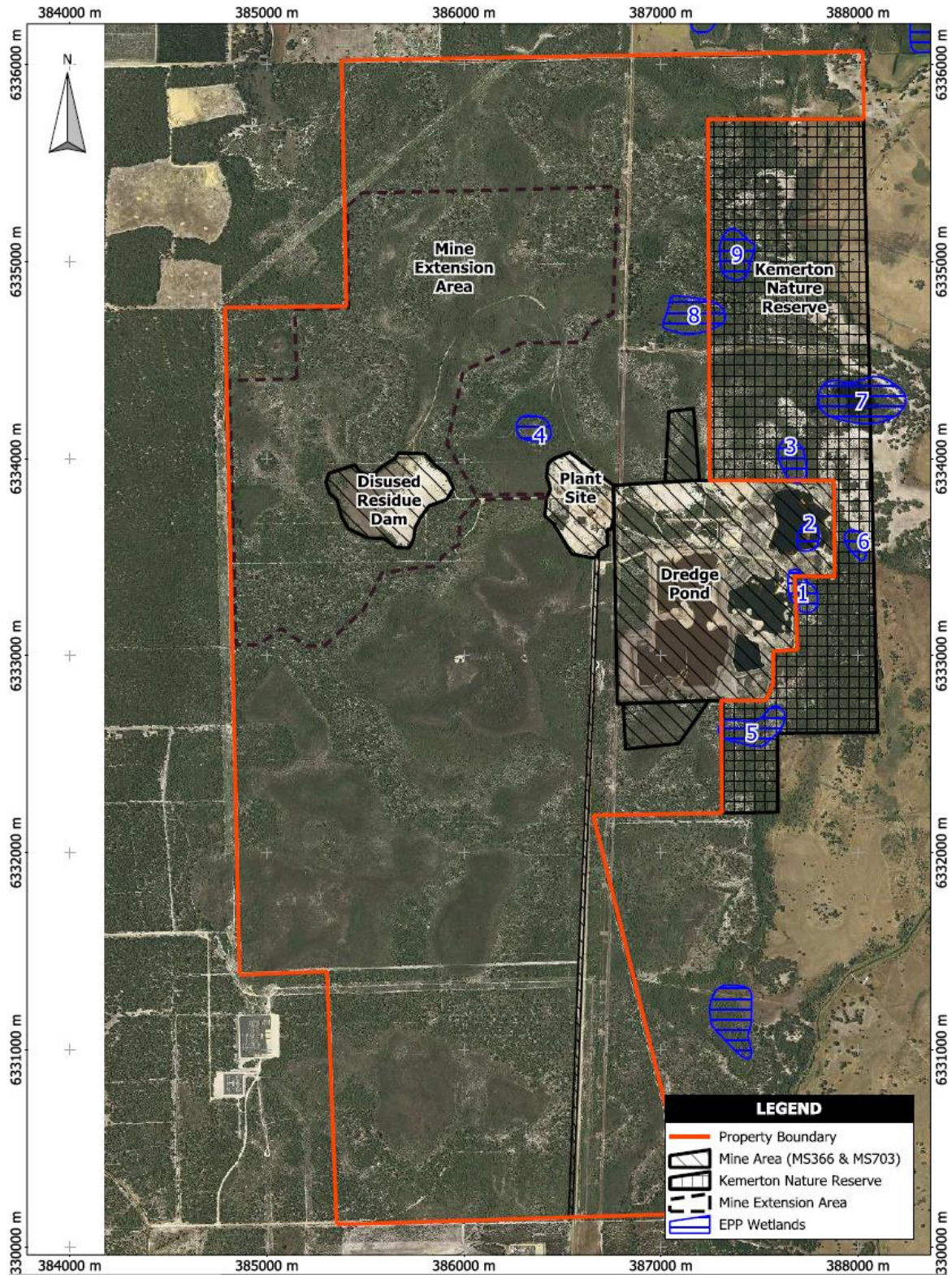
Note 2: Forms are in Schedule 2



## Schedule 1: Maps

### Premises map

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





## 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.

---

### ANNUAL AUDIT COMPLIANCE REPORT PROFORMA

#### SECTION A LICENCE DETAILS

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



## 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?:	
<input type="checkbox"/> Yes <input type="checkbox"/> Reported to DER verbally Date _____ <input type="checkbox"/> Reported to DER in writing Date _____	<input type="checkbox"/> 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) may 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	<input type="checkbox"/> <input type="checkbox"/>	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	<input type="checkbox"/> <input type="checkbox"/>	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	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	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)	<input type="checkbox"/> <input type="checkbox"/>	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	<input type="checkbox"/> <input type="checkbox"/>	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: \_\_\_\_/\_\_\_\_/\_\_\_\_



Licence: L6593/1995/8  
Form: N1

Licensee: Kemerton Silica Sand Pty Ltd  
Date of breach:

### Notification of detection of the breach of a limit.

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	
Position	
Signature on behalf of Kemerton Silica Sand Pty Ltd	
Date	



# Decision Document

## *Environmental Protection Act 1986, Part V*

---

**Proponent:**        **Kemerton Silica Sand Pty Ltd**

**Licence:**         **L6593/1995/8**

---

**Registered office:**    5/363-367 Albany Hwy  
                                 VICTORIA PARK WA 6100

**ACN:**                067 603 552

**Premises address:**    Kemerton Silica Sand mine  
                                 Rhodes Rd  
                                 WOKALUP WA 6221  
                                 Being Lot 32 on Diagram 63554 and Lot 501 on Diagram 75018

**Issue date:**         Thursday, 14 March 2013

**Commencement date:** Thursday, 21 March 2013

**Expiry date:**        Sunday, 20 March 2016

### **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 that the Licence and its conditions will ensure that an appropriate level of environmental protection is provided.

Decision document prepared by:

Daniel Hartnup  
Regional Environmental Officer

Decision Document Authorised By:

Neville Welsh  
Regional Leader





## Contents

Decision Document	1
Contents	2
1 Purpose of this Document	2
2 Administrative summary	3
3 Executive summary of proposal	4
4 Decision table	5
5 Advertisement and consultation table	11
6 Emissions and discharges risk assessment framework	12

## 1 Purpose of this Document

This decision document explains how DER has assessed and determined the application for a works approval or licence, 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.

### Works approval and licence conditions

DER has three types of conditions that may be imposed on works approvals and licences. They are as follows;

#### Standard conditions (SC)

DER has standard conditions that are imposed on all works approvals and licences regardless of the activities undertaken on the Premises and the information provided in the application. These are included as the following conditions on works approvals and licences:

Works approval conditions: 1.1.1-1.1.4, 1.2.1, 1.2.2, 5.1.1 and 5.1.2.

Licence conditions: 1.1.1-1.1.4, 1.2.1-1.2.4, 5.1.1-5.1.4 and 5.2.1.

For such conditions, justification within the Decision Document is not provided.

#### Optional standard conditions (OSC)

In the interests of regulatory consistency DER has a set of optional standard conditions that can be imposed on works approvals and licences. DER will include optional standard conditions as necessary, and are likely to constitute the majority of conditions in any licence. The inclusion of any optional standard conditions is justified in Section 4 of this document.

#### Non standard conditions (NSC)

Where the proposed activities require conditions outside the standard conditions suite DER will impose one or more non-standard conditions. These include both premises and sector specific conditions, and are likely to occur within few licences. Where used, justification for the application of these conditions will be included in Section 4.



## 2 Administrative summary

Administrative details		
Application type	Works Approval <input type="checkbox"/> New Licence <input type="checkbox"/> Licence amendment <input checked="" type="checkbox"/> Works Approval amendment <input type="checkbox"/>	
Activities that cause the premises to become prescribed premises	Category number(s)	Assessed design capacity
	5 – Processing or beneficiation of metallic or non-metallic ore	1,400,000 tonnes per year
Application verified	Date: 11 December 2012	
Application fee paid	Date: 7 January 2013	
Works Approval has been complied with	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
Compliance Certificate received	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
Commercial-in-confidence claim	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Commercial-in-confidence claim outcome		
Is the proposal a Major Resource Project?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the <i>Environmental Protection Act 1986</i> ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No: Managed under Part V <input type="checkbox"/> Assessed under Part IV <input type="checkbox"/>
Is the proposal subject to Ministerial Conditions?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Ministerial Statement Nos: 366, 703, 916 & 920  EPA Report Nos: 741, 1183, 1425 & 1454
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the <i>Environmental Protection Act 1986</i> )?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Department of Water consulted Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Is the Premises within an Environmental Protection Policy (EPP) Area? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
The Premises contains nine lakes subject to the provisions of the <i>Environmental Protection (Swan Coastal Plain Lakes) Policy 1992</i> .		
Is the Premises subject to any EPP requirements? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
The EPP (Swan Coastal Plain Lakes) prohibits the unauthorised mining, filling, draining or effluent discharge into these lakes.		



### 3 Executive summary of proposal

Kemerton Silica Sand (KSS) is a sand dredging mine located 35 km north-east of Bunbury and immediately north of the Kemerton Industrial Park buffer zone. The mine was established in 1995 over 1,620 ha of freehold land which includes regionally significant vegetation complexes and wetland flora and fauna values - the majority of which has now been vested in the State conservation reserve system to offset the loss of environmental values from mining.

The original mining proposal was subject to formal environmental assessment by the EPA and received Ministerial consent in 1994 (Statement 366), subject to the transfer of six EPP lakes and 199.4 ha of KSS-owned land to the State (later becoming the Kemerton Nature Reserve in 1998). The original life of mine was 10 years. In November 2005, Ministerial consent for an additional 13 ha of areas to mine was issued (Statement 703), subject to a further 17 ha of land (encompassing the Muchea Limestone Threatened Ecological Community) being transferred to the State.

As the mine is situated on freehold land released prior to 1899, the *Mining Act 1978* does not apply and environmental impacts associated with the mining activity cannot be managed through mining tenement conditions. As such, environmental management plans and commitments required by Statements 366 and 703 are used to control pollution, monitor and manage EPP lakes to maintain their ecosystem function and values and to require rehabilitation at the Premises.

The mining operation utilises wet mining (dredging) techniques. Once overburden is removed, the watertable is intersected with a suction cutter dredge that floats on an artificially created dredge pond. The dredge extracts feldspathic silica sand ore to a vertical depth of 16 m below the watertable at rates of up to 350 tonnes per hour. Slurried ore is pumped to a Run of Mine (ROM), where it is de-slimed and dewatered using a cyclone hopper before being passed through a series of wet-separation, washing, milling and screening to produce a graded product that is stockpiled and transported to the Bunbury port for export to Japan and Korea for glass manufacturing. The plant water circuit incorporates a thickener, which enables the majority of process water to be recirculated. A small proportion of the process water is used to return the coarse tailings and thickened slimes to the dredge pond. ROM stacker overflow is also returned via a pipeline to the dredge pond. Approximately 30% of the mined ore is returned to the dredge pond.

The dredging operation relies on stormwater inflow during winter and the groundwater table to maintain the dredge pond. Supplementary water for ore processing is obtained from two production bores that abstract from the Superficial aquifer. An additional 15 monitoring bores are located around the mine site and are monitored to detect impacts from mining operations on groundwater levels and quality that may impact sensitive ecosystems. Groundwater abstraction and monitoring is regulated by the Department of Water.

In November 2012, a further 260 ha extension to the mine area was approved (Statement 916), with the remaining undisturbed KSS-owned land (845 ha in total, which includes 432 ha of high conservation value) being transferred to the State. The extension is expected to extend the life of mine by up to 50 years at current extraction rates; however mining in this area is not expected to commence until 2020.



## 4 Decision table

All applications are assessed under the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987*, DEC's Policy Statement - Limits and targets for prescribed premises 2006 and the risk matrix attached to this Decision Document in Appendix A and DEC's Industry Regulation Emissions and Discharges Assessment Framework. Where other references have been used in making the decision they are detailed in the decision table.

DECISION TABLE				
Works Approval / Licence section	Condition number W = Works Approval L= Licence	OSC or NSC	Justification (including risk description & decision methodology where relevant)	Reference documents
General conditions	L1.2.5	OSC	The Premises boundary does not follow a cadastral boundary or mining tenement boundary, therefore OSC 1.2.5 has been added to require the installation of permanent markers along the boundary of the Premises so it can be identified on the ground.	N/A
	L1.3.1 – L1.3.3	NSC	<b>Emission Significance – 2</b> <b>Socio-political context – No concern or interest</b> <b>Risk Assessment – D – licence conditions</b> ROM stacker overflow and process tailings are returned to the dredge pond as part of the dewatering process. NSC 1.3.1 has been added to the licence to ensure that any discharge from the process is discharged only to the dredge pond. NSC 1.3.2 has been added to ensure water levels in the dredge pond and managed in such a manner that minimises the risk of overtopping, except in an extreme rainfall event (i.e. 1:100 year 72 hour flood); and NSC 1.3.3 has been added to ensure discharge pipelines and available freeboard are inspected on a daily basis.	Application supporting documentation
Emissions general	L2.1	OSC	Descriptive limits and targets will be set through condition 2.3.2 of the licence and therefore OSC regarding recording and investigation of exceedances of limits or targets has been included.	N/A



DECISION TABLE				
Works Approval / Licence section	Condition number W = Works Approval L = Licence	OSC or NSC	Justification (including risk description & decision methodology where relevant)	Reference documents
Point source emissions to air including monitoring	L2.2 and L3.2	N/A	<p><b>Emission Significance – 1</b>  <b>Socio-political context – No concern or interest</b>  <b>Risk Assessment – E – no regulation, other management mechanisms</b></p> <p>There are no point source air emissions from operation of the mine. No specified conditions relating to point source air emissions or the monitoring of these emissions are required to be added to the licence.</p>	N/A
Point source emissions to surface water including monitoring	L2.3.1 – L2.3.2 and L3.3.1	OSC	<p><b>Emission Significance – 3</b>  <b>Socio-political context – Low</b>  <b>Risk Assessment – C – licence conditions, targets set</b></p> <p>ROM stacker overflow and process tailings are returned to the dredge pond as part of the dewatering process. OSC L2.3.1 has been added to specify the authorised discharge points and OSC L2.3.2 has been added to specify the discharge water quality criteria (targets) at any one time. A TDS target of 600 mg/L is based on recommendations from the Department of Water, who advised that a limit of 500 mg/L is desirable for the long-term protection of the water resources in the local groundwater. The targets for Total Acidity and Total Alkalinity are based on the DER guidance document <i>Treatment and management of soils and water in acid sulfate soil landscapes</i>. OSC L3.3.1 has been added to require monthly monitoring of the discharge water quality.</p> <p>The licence originally included limits on the discharge to the dredge pond; however these were removed to give effect to the Minister for Environment's appeal determination. The Minister considered that additional data on point source emissions is required to verify whether there is an impact to groundwater from the premises. As expected by the Minister, DER will undertake a review of the targets after at least 12 months of actual monitoring data has been collected and where any known impacts to groundwater quality</p>	<p>DoW advice</p> <p>Treatment and management of soils and water in acid sulfate soil landscapes (DEC, July 2011)</p> <p>Minister's determination (Ref: 001/13)</p> <p>Application supporting documentation</p>



DECISION TABLE				
Works Approval / Licence section	Condition number W = Works Approval L = Licence	OSC or NSC	Justification (including risk description & decision methodology where relevant)	Reference documents
			<p>would more clearly be known. An improvement condition has been added to the licence to require KSS submit the first 12 months of data and trigger the review process. The review will also consider whether limits are required in the future.</p> <p>The Minister through his determination also expects the Licensee to undertake a management response in the event of a target exceedance. This is already a requirement of Condition 2.1.1; to give effect to this, target exceedance reporting form ET1 has been added to Schedule 1 of the licence to specify the minimum information to be gathered as part of the analysis, and quarterly reports are required under Condition 5.2.3.</p>	
Point source emissions to groundwater including monitoring	L2.4 and L3.4	N/A	<p><b>Emission Significance – 1</b>  <b>Socio-political context – No concern or interest</b>  <b>Risk Assessment – E – no regulation, other management mechanisms</b></p> <p>There are no point source emissions to groundwater from operation of the mine. No specified conditions relating to point source emissions to groundwater or the monitoring of these emissions are required to be added to the licence.</p>	N/A
Emissions to land including monitoring	L2.5 and L3.5	N/A	<p><b>Emission Significance – 1</b>  <b>Socio-political context – No concern or interest</b>  <b>Risk Assessment – E – no regulation, other management mechanisms</b></p> <p>There are no emissions to land from operation of the mine. No specified conditions relating to emissions to land or the monitoring of these emissions are required to be added to the licence.</p>	N/A
Fugitive emissions	L2.6.1 and L2.6.2	OSC	<p><b>Emission Significance – 1</b>  <b>Socio-political context – No concern or interest</b>  <b>Risk Assessment – D – licence conditions</b></p> <p>Dust emissions may be generated during periodic movement of vehicles on unsealed roads and from stockpiles of dry product</p>	<p>General provisions of the Environmental Protection Act 1986</p> <p>Application supporting</p>





DECISION TABLE				
Works Approval / Licence section	Condition number W = Works Approval L = Licence	OSC or NSC	Justification (including risk description & decision methodology where relevant)	Reference documents
			<p>material. No additional NSC will be required as OSC 2.6.1 and 2.6.2 have been included to ensure adequate management of dust emissions, particularly on disturbed and open areas within the mine footprint.</p> <p>Light emissions are not expected as activities are only undertaken during daylight hours. No specified conditions regarding fugitive light emissions are required to be added to the licence.</p>	documentation
Odour	L2.7	N/A	<p><b>Emission Significance - 1</b>  <b>Socio-political context – No concern or interest</b>  <b>Risk Assessment – E – no regulation, other management mechanisms</b></p> <p>Odour emissions are not expected to be generated from the mine operations. No specified conditions relating to odour emissions are required to be added to the licence.</p>	N/A
Noise	L2.8	N/A	<p><b>Emission Significance - 1</b>  <b>Socio-political context – No concern or interest</b>  <b>Risk Assessment – E – no regulation, other management mechanisms</b></p> <p>No significant noise emissions are expected from the mine operations. There is no heavy earthmoving machinery being used on the Premises and truck movements are periodic. The nearest noise sensitive receptors are located east and north-east of the Premises, approximately 4 km from the mining operations. Noise can be adequately managed under the Noise Regulations; therefore no specified conditions relating to noise or the monitoring of such emissions are required to be added to the licence.</p>	<p><i>Environmental Protection (Noise) Regulations 1997</i> (Noise Regulations)</p> <p>Application supporting documentation</p>
Monitoring general	L3.1.1 – L3.1.4	OSC	<p>Descriptive monitoring of discharges to surface water have been set through conditions 3.3.1 of the licence and therefore OSC regarding the requirements of sampling, sampling frequency, monitoring equipment and calibration has been included.</p>	<p>Australian Standard AS/NZS 5667.1</p> <p>Australian Standard AS/NZS 5667.4</p>





DECISION TABLE				
Works Approval / Licence section	Condition number W = Works Approval L = Licence	OSC or NSC	Justification (including risk description & decision methodology where relevant)	Reference documents
Monitoring of inputs and outputs	L3.6	N/A	Monitoring of inputs is not required to ensure efficient operation of the mine. No specific conditions relating to monitoring of inputs are required to be added to the licence.	N/A
Process monitoring	L3.7	N/A	Monitoring of process parameters such as flow rate, temperature or pressure is not relevant to category 8 activities and therefore conditions relating to process monitoring are not required to be added to the licence.	N/A
Ambient quality monitoring	L3.8	N/A	Monitoring of ambient groundwater levels and quality for impacts due to mining operations are requirements of KSS's licence to Take Water, administered by the Department of Water (DoW) under the <i>Rights in Water and Irrigation Act 1914</i> . DEC therefore does not consider it necessary to duplicate groundwater monitoring requirements under the licence; however NSC L5.3.2 has been added to require the monitoring data required by DoW in the annual monitoring report, for DEC's information and review.	General provisions of the <i>Environmental Protection Act 1986</i> .  Application supporting documentation
Meteorological monitoring	L3.9	N/A	Monitoring of meteorological conditions is not required to adequately manage emissions from the mine; therefore conditions are not required to be added to the licence.	N/A
Improvements	L4.1.1 and 4.1.2	NSC	Mounding of groundwater around the dredge pond has the potential to impact on regionally significant vegetation. In the absence of any formal studies on the zone of influence for groundwater mounding from the dredge ponds, an improvement condition has been added to the licence to require this work.  Based on groundwater monitoring results, it appears that there is an increasing salinity trend in the immediate vicinity of the processing area and also within and surrounding the main dredge pond. The mining process therefore may be concentrating salinity, which is infiltrating back into the superficial aquifer. An improvement condition has been added to the licence to require the Licensee to assess the salinity in process wastewater being discharged against ambient background concentrations, and propose improvements to	Minister's determination (Ref: 001/13)  General provisions of the <i>Environmental Protection Act 1986</i> .  Application supporting documentation



DECISION TABLE				
Works Approval / Licence section	Condition number W = Works Approval L= Licence	OSC or NSC	Justification (including risk description & decision methodology where relevant)	Reference documents
			achieve salinity consistent with ambient background concentrations.  An additional improvement condition has been added to require the submission of the first 12 months of monitoring data of ROM stacker overflow discharge back to the dredge pond. This will trigger a review of the target values for point source emissions and give effect to the Minister for Environment's appeal determination.	
Information	L5.1.1 – L5.1.4 L5.2.2 – L5.2.3 L5.3.1	OSC	Standard conditions relating to the management of records and complaints, notification and non-annual reporting requirements and the submission of an annual audit compliance report and annual environmental report have been added to the licence.	N/A



## 5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
14/01/2013	Application advertised in West Australian	No comments received.	N/A
22/01/2013	DoW sent a copy of draft instrument and decision document	Discussed issue of duplicating groundwater monitoring requirements; potential increases in salinity in bores nearest the material stockpiles due to infiltration; suggested monitoring for total alkalinity be added to the licence.	Improvement conditions added; groundwater monitoring requirements deleted; total alkalinity added to discharge monitoring, targets and limits.
13/02/2013	Combined on-site meeting between KSS, DEC and DoW	Discussed the potential changes/additional conditions to be added to the licence as part of the REFIRE review, such as the addition of limits and targets on discharge to the dredge pond and the various improvements to process monitoring.	KSS made aware of proposed changes, prior to formal comment period on draft documents.
22/02/2013	Proponent sent a copy of draft instrument	<p>The following matters were raised in response to the drafts:</p> <ul style="list-style-type: none"><li>- KSS does not consider its operations to constitute the mining of mineral sands (category 8), rather screening of material (category 12);</li><li>- Corrections to the mining process;</li><li>- Delete all references to the "Western Extension" as Ministerial Statement 916 is still under assessment by DSEWPC;</li><li>- Considers limits and targets for discharge to the dredge pond to be too stringent for total dissolved salts and electrical conductivity, and proposes new limits and targets; and</li><li>- Request for additional time for submission of IR2.</li></ul>	<ul style="list-style-type: none"><li>- KSS does not consider its operations to constitute the mining of mineral sands (category 8), rather screening of material (category 12);</li><li>- Updated to corrections to the mining process;</li><li>- Removed all references to the "Western Extension";</li><li>- The limits for TDS and EC and target for EC suggested by KSS and based on their data over 11 years of monitoring the dredge pond were considered and adopted; however the target for TDS of 500 mg/L remains, based on the recommendations of DoW; and</li><li>- The initial timeframe of 4 months for submission of the IR2 report has been extended to 9 months.</li></ul>



## 6 Emissions and discharges risk assessment framework

Note: These matrix are taken from the DEC Officer's Guide to Emissions and Discharges Risk Assessment (2006).

**Table 3: Measures of Significance of Emissions**

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

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

**Table 4: Socio-Political Context of Each Regulated Emission**

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

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

\*This is determined by DER using the *Officer's Guide to Emissions and Discharges Risk Assessment* (2006).

**Table 5: Emissions Risk Reduction Matrix**

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

### PRIORITY MATRIX ACTION DESCRIPTORS

A = Do not allow (fix)

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

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

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

E = No regulation, other management mechanisms