

**Draft Environmental Protection  
(Goldfields Residential Areas)  
(Sulphur Dioxide)  
Policy 1992**

**and**

**Draft Environmental Protection  
(Goldfields Residential Areas)  
(Sulphur Dioxide)  
Regulations 1992**

**Environmental Protection Authority  
Perth, Western Australia  
February, 1992**



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## Overview

The Environmental Protection Authority has prepared this Draft Policy and Regulations as part of a review of the Environmental Protection Policy for the Control of Sulphur Dioxide in the Air Environment of the Kalgoorlie-Boulder Residential Areas December 1987. This overview is intended to help people to understand the proposed Policy and Regulations and make submissions to the Authority.

### 1. Introduction

In July 1988 the Minister for the Environment declared an Environmental Protection Policy to control sulphur dioxide concentrations in the air around the residential areas of Kalgoorlie-Boulder. Sulphur dioxide is a waste gas produced by the mining industry in the processing of gold and nickel ores which contain sulphur compounds. The major sources of sulphur dioxide in the Kalgoorlie region were the three gold roasters located in Boulder along the Golden Mile and the Kalgoorlie Nickel Smelter to the south of the city. The Environmental Protection Policy established air quality objectives and, through licence conditions, required industry to monitor the levels of sulphur dioxide to ensure that these objectives were achieved.

Three air quality objectives were established for the concentration of sulphur dioxide over different averaging periods: the first objective was 2000 micrograms per cubic metre ( $\mu\text{g}/\text{m}^3$ ) averaged over one hour, the second was 1300  $\mu\text{g}/\text{m}^3$  over three hours, and the third 365  $\mu\text{g}/\text{m}^3$  for one day.

To achieve these objectives the 1988 Policy prescribed a set of conditions which could be placed on the operating licences of industries emitting sulphur dioxide. Industry was required to monitor sulphur dioxide concentrations in the policy area as well as meteorological conditions to ensure that the objectives were being achieved. The second objective, averaged over three hours, was enforced by licence conditions requiring that the licensee conduct operations so as not to contribute to sulphur dioxide concentrations in the policy area higher than the objective. If the air quality monitoring system were to indicate that such high concentrations were occurring, then the contributing industries would have to cease operations. This was particularly relevant to the gold roasters close to the town. The first and second objectives, averaged over one hour and one day, were not enforced under licence conditions, but were linked to a potential review of the policy.

The three gold roasters have now shut down and all gold roasting operations are now at the Gidji gold roaster north of the city. The Minister for the Environment has directed the Environmental Protection Authority to conduct a review of the 1988 Environmental Protection Policy. This review has produced a new policy and accompanying regulations, the Draft Environmental Protection (Goldfields Residential Areas) (Sulphur Dioxide) Policy and Environmental Protection (Goldfields Residential Areas) (Sulphur Dioxide) Regulations.

### 2. What does the draft policy do?

The new Draft Environmental Protection Policy is different from the Policy of 1988 in two principal areas. The area to which the Policy applies has been extended, and more stringent air quality objectives have been introduced.

The Draft Policy defines protected areas which extend beyond Kalgoorlie-Boulder to encompass other residential areas in the greater Kalgoorlie region. These include the towns of Coolgardie and Kambalda and the Kurrawang Aboriginal Reserve between Kalgoorlie and Coolgardie.

The Draft Policy objectives represent the quality of the air environment which is desirable to achieve and maintain. The movement of gold roasting operations to the Gidji gold roaster north of the city has considerably improved the air quality within the Kalgoorlie-Boulder residential areas. The air is clear of sulphur dioxide for most of the time due to the location of the industrial sources at some distance from the city. However, short term events with high sulphur dioxide concentrations still occur under some circumstances.

The Draft Policy establishes two objectives for air quality. The first objective is for a limit. The limit specifies the sulphur dioxide concentration which is not to be exceeded at any time. The second objective is for a standard. The standard is the sulphur dioxide concentration which it is desirable not to exceed. This represents an expectation for the air quality "most of the time", while recognising that some higher concentrations may occur.

The Draft Policy continues to provide for an air quality monitoring network within the protected areas and allows for a review of the policy, or other action, under the Environmental Protection Act if compliance with the standard is not satisfactory.

### **3. How will the policy objectives be achieved?**

The objectives of the new Policy will be achieved by applying conditions to the operating licences of industries which emit sulphur dioxide. Similar to existing licence conditions, these simply require that the occupiers of licensed industrial premises conduct their operations so that their emissions do not contribute to concentrations of sulphur dioxide in a protected area which are higher than the prescribed ambient air quality limit. The licence conditions, ambient air quality limits and ambient air quality standard are legally established by being prescribed in the Regulations.

The new air quality objectives are considerably more stringent than those declared by the 1988 Policy, and it is recognised that industry will need time to modify its operations to meet the new requirements. Consequently, the Regulations prescribe a series of decreasing limits which are intended to help achieve the Policy objectives within five years. The first stage corresponds to the first objective of the 1988 Policy: concentrations of sulphur dioxide may not exceed  $2000 \mu\text{g}/\text{m}^3$  when averaged over one hour. The prescribed limit decreases steadily until it reaches  $1400 \mu\text{g}/\text{m}^3$ , which is the first objective established by the policy.

There is an explicit expectation that industry will increasingly comply with the air quality standard. The Regulations specify the degree of compliance which is expected, expressed as the percentage of time for which the concentration of sulphur dioxide in a protected area is less than the prescribed standard. At the first stage sulphur dioxide concentrations should be less than the standard for 98.5% of the time, which is close to the present situation. The expected compliance level increases each year until it reaches 99.9%. This is equivalent to sulphur dioxide concentrations in any protected area being higher than the standard for less than nine hours in any 12-month period.

### **4. What happens if the air quality limits and standards are not being achieved?**

The air quality limit will be enforced as a condition of licences issued to industries which emit sulphur dioxide. A breach of that licence condition is an offence under the Environmental Protection Act and may result in prosecution.

The Regulations specify the expected level of compliance with the air quality standard. If sulphur dioxide concentrations exceed the desired standard too often, then the Authority may recommend to the Minister that the Policy be reviewed, or it may take other action under the powers of the Environmental Protection Act.

## **5. What is the public's role?**

If you live in the Goldfields region, or if you would like to contribute to the Draft Policy, your comments and suggestions are welcome.

The EPA will consider all submissions and they will form part of its report to the Minister for the Environment, together with the Revised Draft Policy and Regulations.

The Minister, in turn, will consider the Revised Draft Policy and Regulations and will consult with people likely to be affected by the Policy.

The Revised Policy may then become a part of Western Australian law, binding on Government, industry and individuals.

**Submissions on the Draft Policy will be accepted until 24 April 1992.**

Send your submissions to:

The Chairman  
Environmental Protection Authority  
Westralia Square  
38 Mounts Bay Road  
PERTH WA 6000

Attention: Michael Bell

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**This document has no legal status — it is published to help people understand the requirements of the proposed Policy and the way in which it is intended to administer them and to invite submissions from interested people.**

This Draft Policy is being prepared by the Environmental Protection Authority in accordance with sections 26 and 35 of the Environmental Protection Act 1986.

Set out below are, in the lefthand column, the text of the Draft Policy and, in the righthand column, some explanatory notes.

**THE DRAFT POLICY**

**Citation**

1. This policy may be cited as the *Environmental Protection (Goldfields Residential Areas)(Sulphur Dioxide) Policy 1992*.

**Purpose of the Policy**

2. The purpose of this policy is to provide for ambient air quality limits and an ambient air quality standard for the concentration of sulphur dioxide in the relevant portion of the environment.

**Interpretation**

3. In this policy -

"**industrial source**" means point or area within industrial premises (whether inside or outside a protected area) from which sulphur dioxide is discharged into the air environment;

"**limit**" means concentration of sulphur dioxide which shall not be exceeded;

"**protected area**" means area described in clause 4 (1) (a) (i), (ii), (iii) or (iv);

"**relevant portion of the environment**" means the portion of the environment described in clause 4 (1) (b);

**EXPLANATORY NOTES**

1. This is the official title of the policy.

2. The Policy defines what is the acceptable quality for the air we breathe.

3. It is necessary to precisely define certain terms used in the policy.

- Self explanatory.

- Self explanatory.

- See notes on Clause 4.

- See notes on Clause 4.



## THE DRAFT POLICY

"standard" means concentration of sulphur dioxide which it is desirable not to exceed;

"the Regulations" means the regulations made under the Act to implement this policy.

### Application

4. This policy applies to -

(a) the areas delineated on the map set out in Schedule 1, those areas comprising -

(i) the area delineated on the map of the City of Kalgoorlie-Boulder set out in Schedule 2 and having the shape of a trapezoid, the boundaries of which run from a point 6600000mN and 349000mE, easterly to a point 6600000mN and 356000mE, thence generally southeasterly to a point 6591000mN and 358000mE, thence westerly to a point 6591000mN and 349000mE, and thence northerly to the point 6600000mN and 349000mE;

ii) the area delineated in the map of the town of Kambalda set out in Schedule 3 and having the shape of a rectangle, the boundaries of which run from a point 6548000mN and 366000mE, easterly to a point 6548000mN and 374000mE, thence southerly to a point 6544000mN and 374000mE, thence westerly to a point 6544000mN and 366000mE, and thence northerly to the point 6548000mN and 366000mE;

## EXPLANATORY NOTES

- Self explanatory.

- The Regulations specify the means by which the Policy is to be implemented.

4. The policy applies to the air environment of the residential areas of Kalgoorlie-Boulder, Kambalda, Coolgardie and the Kurrawang Aboriginal Reserve as shown in Schedules 1 to 5.

## THE DRAFT POLICY

iii) the area delineated on the map of the town of Coolgardie set out in Schedule 4 and having the shape of a trapezoid, the boundaries of which run from a point 6576000mN and 323500mE, easterly to a point 6576000mN and 325000mE, thence generally southeasterly to a point 6572000mN and 326000mE, thence westerly to a point 6572000mN and 323500mE, and thence northerly to the point 6576000mN and 323500mE; and

iv) the area delineated on the map of the Kurrawang Aboriginal Reserve, (being Reserve No. 23648, Jaurdi location 23) set out in Schedule 5, and shown on Land Titles Office Diagram 37886.

and

(b) that portion of the environment comprising a layer of air 5 metres thick

(i) immediately above, and immediately surrounding, the external surfaces of any residential premises situated in;

and

(ii) immediately above the surface of the remainder of,

a protected area.

(2) The co-ordinates of the points referred to in subclause (1) (a) (i), (ii), and (iii) are referenced to the Australian Map Grid.

**Beneficial uses to be protected**

5. (1) Any lawful human activity within the relevant portion of the environment which is conducive to the health, welfare, convenience, comfort or amenity of persons within the relevant portion of the environment is declared to be a beneficial use to be protected under this policy.

## EXPLANATORY NOTES

- This describes the atmospheric layer in which the Policy applies, containing the air we breathe.

- Self explanatory

5. (1) Self explanatory

**THE DRAFT POLICY**

(2) The operations of industries (whether inside or outside a protected area) with associated discharges of sulphur dioxide into the air environment and dispersion of those discharges in and around the relevant portion of the environment is declared to be a beneficial use to be protected under this policy.

**Air quality objectives**

6. (1) The air quality objectives for the concentration of sulphur dioxide in the relevant portion of the environment that are sought to be achieved to provide an acceptable level of protection for the beneficial uses identified and declared under clause 5 are the limit and the standard specified in Schedule 6 when averaged over the period specified in that Schedule.

(2) In Schedule 6 -

" $\mu\text{g}/\text{m}^3$ " means concentration of sulphur dioxide in micrograms per cubic metre of dry air at 0 degrees Celsius and one atmosphere pressure (101.325 kilopascals).

**Ambient air quality limits and ambient air quality standard for sulphur dioxide**

7. (1) The ambient air quality limits for the concentration of sulphur dioxide in the relevant portion of the environment that are intended to assist in the achievement of the air quality objectives referred to in clause 6 -

(a) are the limits specified in the Regulations in respect of successive periods of 12 calendar months specified therein; and

(b) shall be complied with in accordance with the Regulations and with conditions to which any relevant licences are subject.

**EXPLANATORY NOTES**

5. (2) The policy recognises that the discharge of sulphur dioxide into the atmosphere is a legitimate activity provided other activities are not compromised.

6. The policy establishes air quality objectives in terms of standards and limits for the concentration of sulphur dioxide. These define the environmental quality we want to achieve and maintain.

- A technical specification to ensure consistency in taking measurements.

- The Regulations specify the ambient air quality limit which applies from time to time.

- Once prescribed in Regulations the limit can be enforced in a licence condition.

## THE DRAFT POLICY

(2) The ambient air quality standard for the concentration of sulphur dioxide in the relevant portion of the environment that is intended to assist in the achievement of the air quality objectives referred to in clause 6 is the standard specified in the Regulations.

### Chief Executive Officer may require monitoring

8. (1) If significant industrial sources are located within particular industrial premises, the Chief Executive Officer may, as a condition of a licence referred to in section 62 (1) (e) of the Act, require the occupier of those premises to carry out a specified monitoring programme to monitor -

(a) the quantity (expressed as a discharge rate (in units of mass per unit of time) or as a discharge concentration (in units of mass per unit of volume at specified reference conditions)) of sulphur dioxide discharged from such of the significant industrial sources, together with such other characteristics of that discharge, as are specified, and the volume and effects of that discharge; and

(b) the concentration of sulphur dioxide at specified locations in the relevant portion of the environment.

(2) In subclause (1) -

**"significant industrial source"** means industrial source from which the discharge of sulphur dioxide is, in the opinion of the Chief Executive Officer, such as to affect, or to be likely to affect, the relevant portion of the environment;

**"specified"** means specified in the licence concerned.

## EXPLANATORY NOTES

- The Regulations also prescribe the ambient air quality standard.

8. An industrial premises may be required by a licence condition to:

- Monitor the discharge of sulphur dioxide at its source.

- Monitor the ambient levels of sulphur dioxide.

- Self explanatory.

**THE DRAFT POLICY****Review of the Policy**

9. Subject to section 36 of the Act, if concentrations of sulphur dioxide in the relevant portion of the environment exceed the ambient air quality standard referred to in clause 7 (2) in any period of 12 calendar months for more than the percentage of the hours in that period specified in the Regulations in respect of that period, the Authority shall consider that excess and may recommend to the Minister that this policy be reviewed under that section.

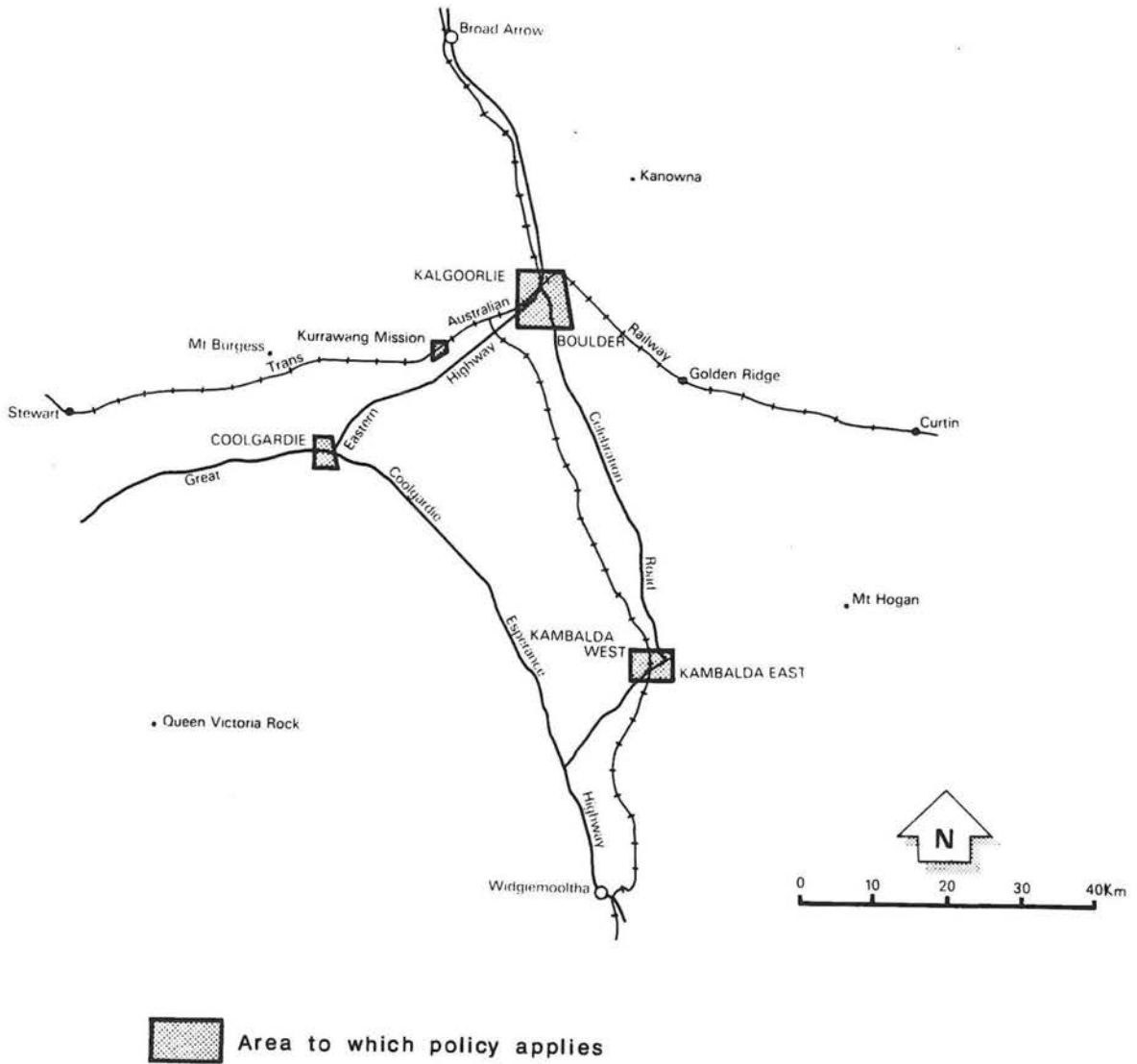
**EXPLANATORY NOTES**

- if the standard is not being maintained to a satisfactory degree, then the Policy may be reviewed. The Regulations specify what is satisfactory.

### SCHEDULE 1

(Clause 4 (a))

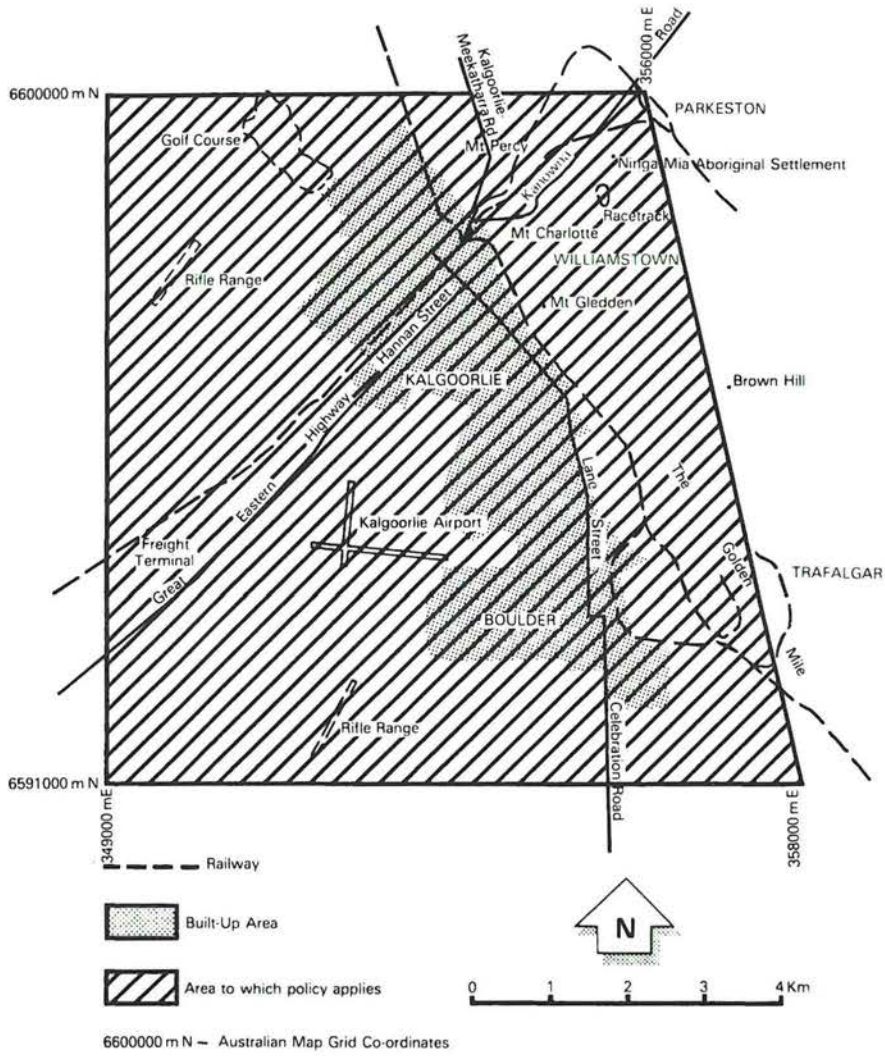
Map showing situation of residential areas of City of Kalgoorlie-Boulder, Town of Coolgardie, Town of Kambalda and Kurrawang Aboriginal Reserve.



SCHEDULE 2

(Clause 4 (a)(i))

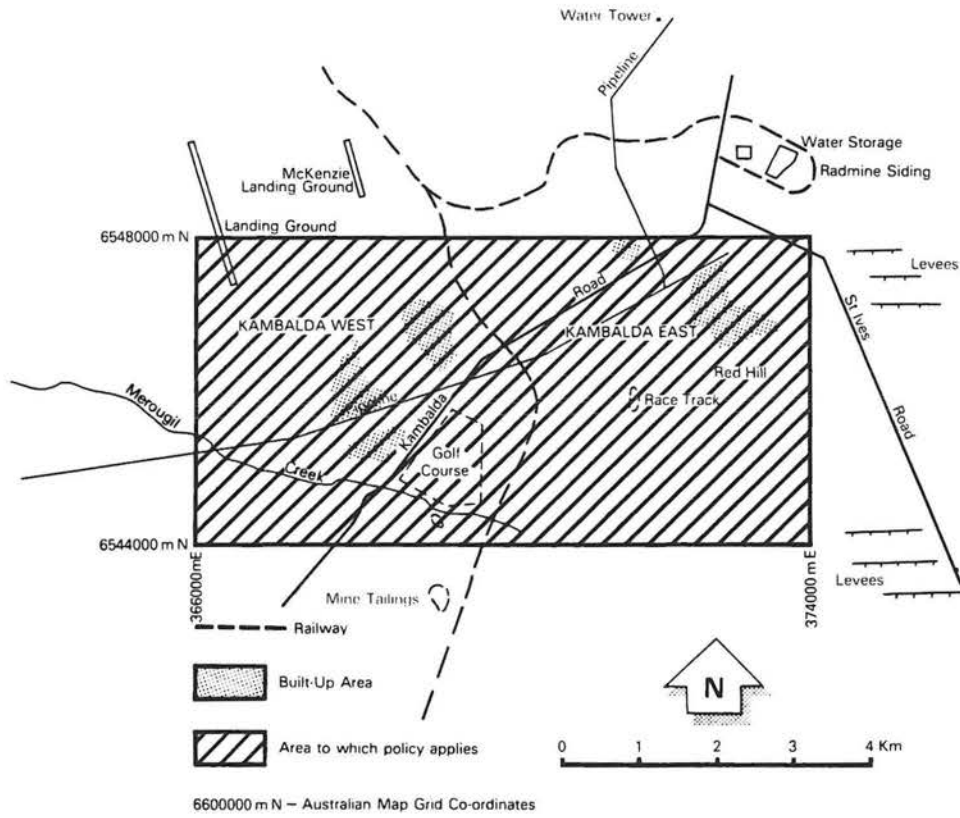
Map showing residential area of City of Kalgoorlie-Boulder



### SCHEDULE 3

(Clause 4 (a)(ii))

Map showing residential area of Town of Kambalda

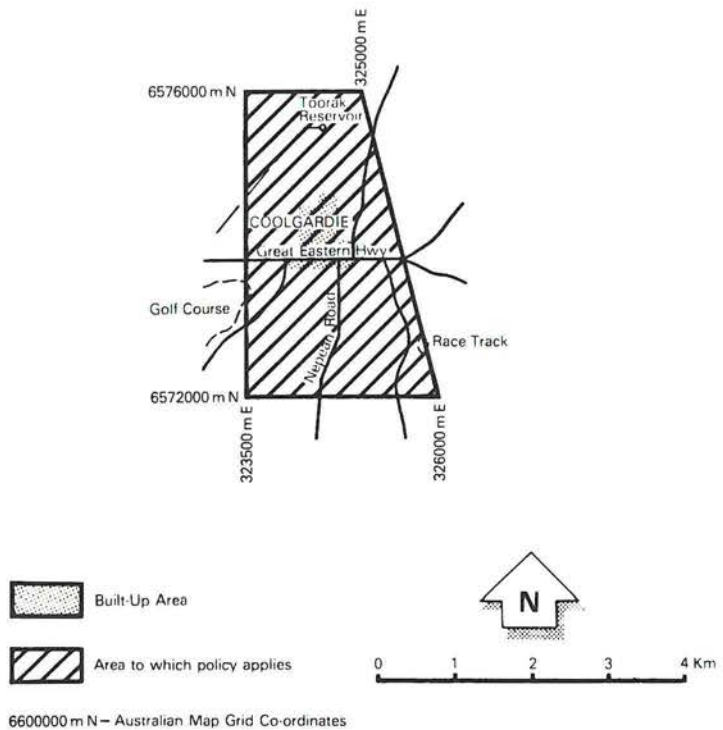




SCHEDULE 4

(Clause 4 (a)(iii))

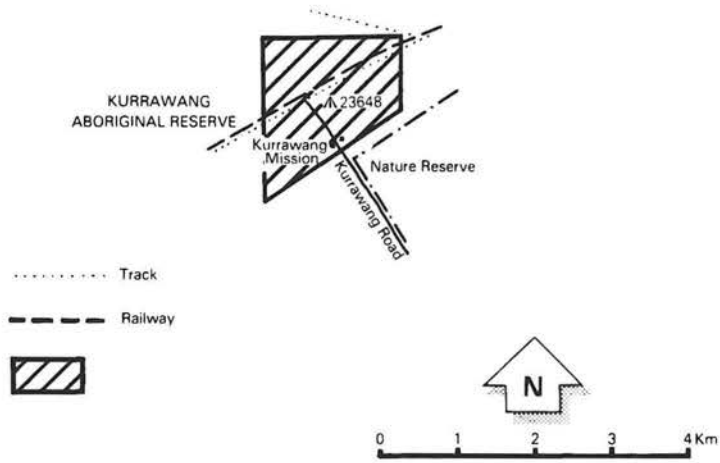
Map showing residential area of Town of Coolgardie



SCHEDULE 5

(Clause 4 (a)(iv))

Map showing residential area of Kurrawang Aboriginal Reserve.



Reserve No 23648, Jaurdi location 23,  
as shown on LTO Diagram 37886

## SCHEDULE 6

(Clause 6)

## AIR QUALITY OBJECTIVES

Limit	Standard	Averaging period
1400 $\mu\text{g}/\text{m}^3$	700 $\mu\text{g}/\text{m}^3$	1 hour

Explanatory note: This Schedule specifies the Policy Objectives which define the environmental quality we wish to achieve. These Objectives are defined in terms of a limit and a standard: the limit is the concentration of sulphur dioxide which must not be exceeded; the standard is the concentration of sulphur dioxide which it is desirable not to exceed.

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**THE DRAFT REGULATIONS**

**Citation**

1. These regulations may be cited as the *Environmental Protection (Goldfields Residential Areas)(Sulphur Dioxide) Regulations 1992*.

**Commencement**

2. These regulations shall come into operation on the day on which the Policy comes into operation.

**Interpretation**

3. In these regulations -

- (a) " $\mu\text{g}/\text{m}^3$ " means concentration of sulphur dioxide in micrograms per cubic metre of dry air at 0 degrees Celsius and one atmosphere pressure (101.325 kilopascals);

"the Policy" means the *Environmental Protection (Goldfields Residential Areas)(Sulphur Dioxide) Policy 1992* approved under the *Environmental Protection (Goldfields Residential Areas)(Sulphur Dioxide) Order 1992* and set out in the Schedule to that order;

and

**EXPLANATORY NOTES**

1. This is the official title of the regulations.

3. It is necessary to precisely define certain terms used in the regulations.  
- A technical specification to ensure consistency in taking measurements.

- Self explanatory.

**THE DRAFT REGULATIONS**

- (b) unless the contrary intention appears, other words and expressions have the same respective meanings as they have in the Policy.

**Ambient air quality limits and ambient air quality standard for sulphur dioxide**

4. For the purposes of -

- (a) clause 7 (1) (a) of the Policy, the ambient air quality limit for the concentration of sulphur dioxide in the relevant portion of the environment for a particular period of 12 calendar months commencing on a date specified in the first column of Schedule 1 is the limit specified in the second column of that Schedule in respect of that period when averaged over the period specified opposite thereto in the third column of that Schedule;
- (b) clause 7 (2) of the Policy, the ambient air quality standard for the concentration of sulphur dioxide in the relevant portion of the environment on and after 1 January 1992 is  $700 \mu\text{g}/\text{m}^3$  when averaged over one hour.

**Compliance with ambient air quality standard**

5. For the purposes of clause 9 of the Policy, the percentage of the hours in any period of 12 calendar months commencing within a year -

- (a) commencing on 1 January and ending on 31 December; and
- (b) specified in the first column of Schedule 2,

**EXPLANATORY NOTES**

- Self explanatory.

- Schedule 1 establishes the ambient air quality limit which will be in force for each calendar year.

- This clause prescribes the ambient air quality standard.

- Schedule 2 specifies the minimum level of compliance with the standard which is expected to be achieved during any 12 month period. It is expected that the standard will be achieved for greater percentage of the time in each succeeding year.

## THE DRAFT REGULATIONS

is the percentage specified in the second column of Schedule 2 in respect of that year so that the relevant ambient air quality standard shall not be exceeded for more than the number of hours in that year specified in the third column of that Schedule in respect of that year.

### **Prescribed licence condition for certain industrial premises**

6. (1) There is prescribed for the purposes of section 62 (1) (h) of the Act as a condition that may be specified in a licence granted in respect of industrial premises (whether inside or outside a protected area) within which a significant industrial source is located the condition that the occupier of those premises shall conduct the operations on those premises in such a way as neither to cause, nor to contribute to causing, the relevant ambient air quality limit referred to in regulation 4 (a) to be exceeded.

(2) In this regulation -

**"significant industrial source"** means industrial source from which the discharge of sulphur dioxide is, in the opinion of the Chief Executive Officer, such as to affect, or to be likely to affect, the relevant portion of the environment.

## EXPLANATORY NOTES

- This clause enables the EPA to place conditions on the licences of relevant industries which will require that the limit not be exceeded.

- Self explanatory.

**SCHEDULE 1**

(Regulation 4 (a))

**AMBIENT AIR QUALITY LIMITS FOR SULPHUR DIOXIDE**

Commencing date	Limit	Averaging period
1 January 1992	1300 $\mu\text{g}/\text{m}^3$	3 hours
1 January 1993	2000 $\mu\text{g}/\text{m}^3$	1 hour
1 January 1994	1800 $\mu\text{g}/\text{m}^3$	1 hour
1 January 1995	1600 $\mu\text{g}/\text{m}^3$	1 hour
1 January 1996 and 1 January in each succeeding year	1400 $\mu\text{g}/\text{m}^3$	1 hour

Explanatory note: The above Schedule 1 sets out the ambient air quality limit for sulphur dioxide which is to apply in each calendar year. It is intended that the Policy objective for the air quality limit will be achieved within five years.

**SCHEDULE 2**

(Regulation 5)

**MINIMUM LEVELS OF COMPLIANCE WITH STANDARDS**

Commencing year	Minimum compliance level	Maximum number of hours over standard per year
1992	98.5%	131
1993	98.5%	131
1994	99.0%	87
1995	99.5%	43
1996	99.9%	8

Explanatory note: Schedule 2 sets out the minimum level of compliance with the ambient air quality standard which will be expected by the Authority, and the corresponding maximum number of hours for which the standard may be exceeded in any 12-month period. If the standard is breached more frequently than this then the Authority will take appropriate action.