

Air Liquide Australia Ltd Caroline Carbon Dioxide Purification Plant



Statement of Environmental Objectives

June 2001



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DOCUMENT CONTROL SHEET						
Caroline Carbon Dioxide Purification Plant - Statement of Environmental Objectives						
Document Reference	Revision Number	Revision Date	Compiled by	Checked by	Approved by	Comment
ala005rmw	A	21/11/00	CTS/MCW	WEM	MCW	Issued for comment
ala005rmw	B	19/12/00	SC/MCW	SC	MCW	Issued to Air Liquide
ala005rmw	0	15/6/01	SC	AB	AB	Issued to Air Liquide

Contents

1	Scope and Purpose	1
2	Definition	1
3	Environmental Objectives.....	2
4	Assessment Criteria.....	2
5	Incidents	3
	5.1 Serious Incidents	3
	5.2 Reportable Incidents	3
6	References.....	5

Appendices:

Appendix 1.....	Environmental Objectives and Assessment Criteria
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1 Scope and Purpose

This Statement of Environmental Objectives (SEO) has been prepared to meet the requirements of Section 6 of the Schedule to the *Petroleum Act 2000* (the Act).

The SEO applies to all regulated activities conducted by Air Liquide Australia Ltd at the Caroline Carbon Dioxide Purification Plant located 12km south east of Mt Gambier, South Australia.

The intent of this SEO is to outline the environmental objectives to which these operations must conform and the criteria upon which the achievement of these objectives will be assessed. Objectives have been developed from an environmental impact assessment undertaken by Ecos Consulting (Aust) Pty Ltd and documented in the Environmental Impact Report (Ecos, 2000).

2 Definition

In the Act, 'environment' is broadly defined to include its natural, social, cultural and economic aspects. The environmental objectives outlined in the SEO incorporate all these aspects.

3 Environmental Objectives

The *Environmental Impact Report* identified potential environmental hazards and consequences associated with the operation of the Caroline Carbon Dioxide Purification Plant. Air Liquide have committed to achieving a range of environmental objectives in regard to these potential hazards, as outlined below:

- Avoid groundwater and soil contamination;
- Minimise Air Liquide's contribution to the "greenhouse effect" and ozone depletion; and
- Provide a safe working environment for employees, contractors and third parties.

4 Assessment Criteria

The criteria for measuring the achievement of these environmental objectives are detailed in Appendix 1 and take one or more of the following forms:

Defined Conditions

In some cases the achievement of an objective can be assessed through ensuring defined conditions are met or carried out.

For example: Phase out the use of silica gel and replace with Trockenperlen N by March 2001.

Long Term Monitoring

In some cases the assessment of the environmental objectives may not be possible in the shorter-term and may require longer-term monitoring and scientific evaluation. In such cases, the assessment criteria may be in the form of longer-term data and information gathering and scientific evaluation studies. The results of such studies could then be used to develop additional defined conditions.

For example: Monitor the quality of water disposed of on site via irrigation.

A summary of the objectives and criteria is presented in Appendix 1.

5 Incidents

5.1 Serious Incidents

Section 85 of the Act defines a serious incident as an incident arising from activities conducted under a licence in which:

1. a person is seriously injured or killed; or
2. an imminent risk to public health or safety arises; or
3. serious environmental damage occurs or an imminent risk of serious environmental damage arises; or
4. security of natural gas supply is prejudiced or an imminent risk of prejudice to security of natural gas supply arises.

Pursuant to Regulation 12(2), the incidents listed below are considered to be serious incidents that may arise from operation of the Plant.

- Any spill of fuel, oil or hazardous material which encroaches into land used for other land uses or into groundwater supplies.
- Storage, handling or disposal of waste which poses a significant threat to the surrounding land or groundwater.
- Leakage of CO₂ from wellhead, pipes or fittings associated with a failure or rupture.
- Explosion or fire at wellhead or pipe union.

5.2 Reportable Incidents

Reportable incidents are incidents (other than a serious incident) arising from activities conducted under a licence issued under the *Petroleum Regulations 2000*.

Pursuant to Regulation 12(2) the incidents listed below are considered to be reportable incidents that may arise from operation of the Plant.

- Any spill of oil or hazardous material outside of sumps and bunded areas designed to contain such spills.
- Non-compliance with waste storage, handling or disposal procedures, as detected through system audits.

- **Non-compliance with defined procedures in relation to casing design, well bore fluid migration and casing integrity monitoring, as detected through system audits.**
- **Unintended escape of a processed substance, a chemical or a fuel that affects an area that has not been specifically designed to contain such an escape.**
- **Detection of corrosion beyond that for which management procedures are in operation.**
- **Detected unauthorised third party access to plant.**

6 References

Ecos Consulting (Aust) 2000. Caroline Carbon Dioxide Purification Plant - Environmental Impact Report. Unpublished report to Air Liquide Australia

Appendix 1:

Environmental Objectives and Assessment Criteria

Objective	Assessment Criteria
<p>Avoid groundwater and soil contamination</p>	<p>General</p> <ul style="list-style-type: none"> ▪ Chemicals, fuels and oils stored in a contained area on a flat, impermeable surface. ▪ Sulphuric acid stored in a contained area. ▪ Spill response station maintained. ▪ Environmental incident reporting integrated into existing incident reporting systems (i.e. QIR). ▪ Appropriate training in spill response and reporting for employees and contractors undertaken. ▪ Material Safety Data Sheets and spill response procedures posted in appropriate work areas. ▪ In the event of a spill, appropriate spill response procedures followed and the incident reported to the Plant Manager (as per Safety Training Manual). ▪ Waste volumes recorded and continually reviewed to ensure that waste generation (as a percentage of Co2 production) is not increasing. ▪ Waste generation reviewed and opportunities for reduction identified and documented (by March 2001). ▪ Use of silica gel phased out and waste generation below 800 kg/year for moisture removal stage of CO₂ purification (by March 2001). ▪ Strategy developed for waste reduction (by June 2001). ▪ Contracts with licensed waste disposal contractors maintained (i.e. spent silica gel, activated carbon, Puraspec, sewage, hydrocarbon, and general rubbish). ▪ Monitor wellhead pressure and diesel system. Assess casing integrity every two years. <p>Hydrocarbon Waste</p> <ul style="list-style-type: none"> ▪ Hydrocarbon waste is stored in bunded tank. ▪ Hydrocarbon tank and bunded area inspected for spills and leaks. ▪ Procedure for hydrocarbon tank and bund maintenance and inspection to be documented. ▪ Hydrocarbon storage tanks and bund to be maintained in a structurally sound condition. <p>Produced Formation Water</p> <ul style="list-style-type: none"> ▪ Sprinkler system is relocated periodically to avoid creation of soakages and areas of die-off. ▪ A checklist for inspection of grassed areas, "effluent" tanks, hydrocarbon storage tank and bunds developed and implemented. ▪ Liquid waste sampled and analysed for hydrocarbon content, salinity and pH levels every six months. ▪ Water quality monitoring data (hydrocarbon content, salinity and pH) and inspections of discharge (irrigation) water (i.e. signs of "die-off" or surface hydrocarbons on grassed areas) recorded. ▪ Water quality data to be assessed as per ANZECC guidelines for agriculture. <p>Disused Waste Pits</p> <ul style="list-style-type: none"> ▪ Soil sampling conducted in vicinity of disused waste pits (by March 2001). Soils analysed for hydrocarbon content, salinity and pH levels. ▪ Results recorded and any remedial action necessary taken.

<p>Minimise Air Liquide's contribution to greenhouse gas accumulation and ozone depletion</p>	<p>Emissions</p> <ul style="list-style-type: none"> ▪ Plant designed to adequately control fugitive emissions (as per manual). ▪ Maintenance program implemented in accordance with x schedule. ▪ CO₂ losses reduced by 5% (by December 2001). ▪ Records kept of regular maintenance program to ensure that maintenance requirements are met regularly. <p>Freon Gas</p> <ul style="list-style-type: none"> ▪ Freon gas for refrigeration phased out (by end June 2002). ▪ Freon removed from site and disposed of by accredited contractor. <p>"Off-specification" CO₂</p> <ul style="list-style-type: none"> ▪ Operating procedures revised and updated with respect to production of off-specification gas. That is, if production of off-specification gas increases then operating procedures must be reviewed and modified to remedy the situation. ▪ Product quality analysed and monitored.
<p>Provide a safe working environment for employees, contractors and third parties</p>	<ul style="list-style-type: none"> ▪ Wellhead and tubing monitored every two years and records kept. ▪ Wellhead pressure monitored daily (ongoing) and records kept. ▪ Diesel system monitored. ▪ Appropriate training in emergency response and incident reporting for employees and contractors undertaken. ▪ Emergency response procedures (including contact numbers) posted in appropriate work areas. ▪ Procedures concerning involvement of Emergency Services in an on-site emergency (eg. well blow-out) are documented and made available to all relevant parties. ▪ CFS has a register of grid location.