

A.G.Coombs Environmental 2005 -06

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1.0 ENVIRONMENTAL POLICY

Within A.G. Coombs our Environmental Policy is implemented through a wide range of procedures and practices that are part of our normal business practices. Contract specific Environmental Management Plans are developed for particular contracts or sites as required and these set out site/contract specific procedures and practices to minimise, manage and report on environmental impacts.



A.G.Coombs

Environmental Policy

The Directors and Senior Executives of A.G. Coombs Servicing Pty Ltd. are committed to managing the environmental impacts resulting from Company activities, and to ensure that these activities are ecologically sustainable, while continuing to meet customer expectations.

A.G. Coombs Servicing Pty Ltd. is committed to:-

- Protecting the environment with regard to work sites.
- Preventing degradation of the environment.
- Minimising the risks to human health.

This will be achieved by:-

- A structured Environmental Management Plan.
- Minimisation of discharges into the air, land or water, of substances likely to harm the environment.
- Minimisation of waste, by promoting the reduction of waste, re-use and recycling of materials.
- Minimisation of non-reusable resources, such as energy and potable water.
- Continuous improvement in the collection, transportation, treatment, storage and disposal of waste.
- Promotion of environmental protection awareness amongst staff, visitors, suppliers and sub-contractors.
- Compliance with Legislation.
- Use of environmentally friendly products and technology.
- Emergency Response Plans to minimise harmful impacts on the environment.

The A.G. Coombs Servicing Pty Ltd. Environmental Management Plan will be reviewed regularly by the Advisory Board to ensure continuous improvement of the Environmental Management Plan, and compliance with Legislation.

A.G. Coombs Servicing Pty Ltd. Directors, Management and Staff, support the Environmental Policy and Plan, by their involvement in decisions and training about environmental matters.

Russell F. Telford
Managing Director
January 2004

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2.0 ENVIRONMENTAL TRAINING

Training in environmentally related areas typically falls into four (4) categories in A.G. Coombs.

1. General induction training for new employees: New employees are given comprehensive induction training; this includes aspects relating to environmentally related procedures and practices.
2. Site /contract specific induction training: Employees are provided with training for site / contract specific requirements.
3. Training as part of ongoing individual training plans: All employees have individual training plans. These are reviewed as required or yearly as a minimum and may include environmentally related training.
4. General training relating to new issues, new company procedures, technology or regulations.

3.0 ENVIRONMENTAL PERFORMANCE MONITORING & REPORTING

The environmental performance of the A.G. Coombs group of companies is formally reported on each financial year. This Report is part of A.G. Coombs commitment to improving the environment where possible through our services and managing company activities to ensure that any related environmental impacts are minimised while continuing to meet client expectations.

Analysis and reporting on environmentally related issues is also carried out to reflect specific site/contract requirements. For example on some sites water usage associated with cooling towers and central plant is actively tracked, analysed and reported on. This information is used to tune systems and identify problems. On some sites energy consumption / energy efficiency related issues are reported and tracked. This information is used to tune systems and to identify and quantify opportunities for further reductions in energy consumption. On one particular very large site (>50,000 2) we are an integral part of an extensive and ongoing energy minimisation and management program.

Site / contract specific environmentally related information is reported to clients via regular monthly and/or other contract reporting mechanisms. These reports are sometimes part of our contracted responsibility / service and as such are typically subject to commercial confidentiality provisions. The usage, reclaim and accounting for of CFC refrigerant gases is subject to specific regulatory control and reporting.

Information relating to the environment impact of our business operations such as office energy consumption, paper usage / recycling, metals recycling, disposal to landfill, vehicle fuel usage etc is accounted for and reported as part of in house business reporting.

4.0 POLLUTION CONTROL

Assessment of the typical activities carried out in our maintenance of building services indicates pollution risk in the following areas:

- Contaminated water effluent to storm water: This is particularly a problem with treated water from cooling towers and associated systems. As part of our site management service we advise clients of situations where there is the potential for inadvertent discharge of effluent to storm water and recommend the installation of appropriate arrangements.
- Leakage of oil from air conditioning equipment. We have oil reclaim practices and recycling arrangements in place. A number of sites where there is a particular risk have spill kits installed.
- Discharge of refrigerant gas to atmosphere. We have refrigeration gas reclaim procedures and the appropriate equipment and training is in place. On sites where the risk and consequence of refrigerant gas escape is significant we recommend higher frequencies of inspection and maintenance and in some instances the installation of leak detection / warning systems and ensure that rupture disc arrangements are such that the risk of large amounts of gas on failure is minimised.
- Boiler and Diesel Generator Exhaust Stacks: Our boiler technicians are fully trained in boiler tuning and adjustment to minimise harmful discharges and maximise the efficiency of boiler combustion. Diesel generators are regularly maintained by trained staff and adjusted to minimise harmful exhaust discharges.
- Waste to landfill; Ground pollution via waste to landfill is minimised through paper and metal recycling programs. Paper usage is minimised through the use of electronic communications and information management
- Vehicle Pollution: All fleet vehicles are regularly tuned and technicians undergo driver training. Vehicle maintenance is carried out by qualified organisations/ dealerships using responsible environmental practices for the discharge and disposal of effluent, oil and used materials.

5.0 WASTE MANAGEMENT

Recycling arrangements are in place for office paper, office cardboard and metals. Refrigerant gases are reclaimed and reused. Used oil from air conditioning equipment is reclaimed and recycled.

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6.0 TRANSPORT

Energy efficiency is considered in the selection of vehicles as one of a number of criteria. Our mobile service vehicles are appropriately sized and equipped to minimise the need for additional travel to acquire parts or specialist tools and equipment. Vehicle costs are closely monitored, travel time and associated fuel usage is minimised by good planning and organisation of van based technician activities. All fleet vehicles are serviced and tuned regularly to ensure maximum fuel efficiency is maintained. Up until recently the majority of fleet vehicle were Natural Gas powered. Significant ongoing problems with reliability and efficiency of natural gas powered vehicles has meant that, like a number of fleet operators, we have moved away from natural gas vehicles. Vehicle selection criteria are reviewed regularly.

7.0 NATURAL RESOURCES

Materials

Sites/ Contracts: Material usage on sites is minimised through good maintenance practices, increasingly equipment is being serviced as required by its condition or its "hours run" rather than on a strict time scheduled basis. This usually results in less material usage (e.g. air filters, oil, belts, belts etc). We actively promote improved maintenance approaches. Minor work s are carried out based on thorough planning and the application of well thought through procedures and practices to minimise the materials required and reduce the likelihood of rework and the use of further materials.

Office: The major material usage in the office is paper, this is minimised through the use of electronic communications and information management.

Chemicals

Our procedures require us to review and manage all chemical usage. Dangerous goods legislation and compliance with the OH&S Act require good levels of management, documentation and training associated with chemical usage. This process has seen a number of chemicals that have posed OH&S risks or environmental risks discontinued in their use. A good example is the usage of chromates in water treatment for cooling towers. This group of chemicals was used widely as a very effective anti corrosion agent. Chromates are now viewed as posing unacceptable safety and environmental risks and their use has been discontinued.

Energy

The great majority of our non transport energy usage is in the office. Lighting and business machines (Computers, photocopiers, printers, faxes, etc) are turned off during non business hours if appropriate, where not appropriate machines with power saver modes are installed. Energy efficiency is a factor taken into account when business machines are acquired. Office air-conditioning and ventilation systems are time clock controlled to operate during business hours. Hot water in the kitchens is provided by boiling hot water taps (instantaneous heaters) Energy usage is tracked via energy bills. Energy efficiency is a factor considered whenever the office is expanded.

Energy usage associated with sites/contracts is usually minimal and related to power tools and equipment. On sites where we have a permanent presence the office procedures apply with respect to lights, air conditioning and business machines.

We provide an energy auditing service for our clients as part of our A.G. Coombs Advisory service and have staff very experienced in this area and in the area of reducing the environmental impacts of buildings.

Water

Office: Water usage in our office in minimal. We have dual flush toilet cisterns and boiling hot water taps (instantaneous heaters) to minimise wastage.

Sites/Contracts: We have a number of strategies and practices in place to manage and minimise water usage for our sites/contracts. The great majority of water usage in mechanical building services is associated with cooling towers. On a number of sites water usage associated with cooling towers is actively tracked, analysed and reported on. This information is used to tune systems and identify problems. We actively promote water conservation in cooling towers to our clients and the broader industry. The A.G. Coombs Advisory Note "Managing Water Usage in Cooling Towers" has been circulated on a number of occasions to our clients and has been included in a number of industry journals. We provide a water auditing service for our clients as part of our A.G. Coombs Advisory service and have staff very experienced in this area and in the area of reducing the environmental impacts of buildings.



May 2003

Managing Water Usage in Cooling Towers

Cooling towers are responsible for the consumption of large amounts of potable water. A cooling tower installation serving a large commercial building may consume in excess of 500,000 litres of water in a week through the evaporative effect alone.

With concerns increasing over water consumption and its future scarcity water usage in cooling towers has become an important issue that we must manage.

There are six ways in which water is used in cooling towers:

1. Evaporation: As part of the heat rejection process, as a general rule the greater the heat rejection the greater the evaporation rate. It is however a complex relationship with a number of variables including flow rates, cooling tower design, fan operation and effectiveness, wet and dry bulb ambient temperatures, prevailing wind conditions, condenser water temperature set points and system control regimes. A well managed system whether it be industrial plant or building air-conditioning will reject less heat, use less energy and consume less water.

2. Bleed: Because of the evaporative effect the concentration of dissolved salts in the system will increase leading to scale and deposit build up and corrosion. Automatic "bleed" systems work to manage and limit concentration levels by draining water and replacing it with fresh water. The bleed can be at a set rate by fixed valve or timed discharge, or it can be variable based on sensing the water properties as they are affected by dissolved salts e.g. conductivity. Either method can result in excessive bleed rates if the system is not set up properly and **checked regularly**.

3. Carry Over or "Drift": Inappropriately sized cooling towers, poorly modified cooling towers, cooling towers with ineffective or no drift eliminators can all result in excessive amounts of carry over or drift in the discharge air. Aside from the water wastage aspect this is a public health risk circumstance and is now the subject of strong regulatory control in most Australian States. There should be minimal carry over from cooling towers.

4. System leakage: Because cooling tower systems are "open systems" leakage often goes unnoticed. Leaks may be due to faulty glands in pumps or a number of other sources. The rate of system water loss from splash out from cooling tower basins and

exposed fill can be significant in poorly designed installations. Systems should be audited regularly and leaks rectified.

5. Cleaning and Remedial Actions: Draining down cooling towers and systems for scheduled cleaning and as a part of the "disinfect – clean – disinfect" remedial process required by law now consumes significant amounts of water. Cleaning with high-pressure washers also uses large amounts of water. These activities are by and large at present carried out with little or no regard to the amount of potable water consumed. There needs to be a heightened awareness of water usage during these activities and water should be conserved where possible without compromising public health.

6. Maintenance of system components: Maintenance, modification and repair of cooling tower system components such as chillers, pumps, valves and heat exchangers can sometimes require the drain down of the system. These activities are often carried out with little or no regard to the amount of potable water consumed.

There are a number of areas that need attention and a strategic approach is required to manage and minimise water consumption in cooling tower systems.

Water usage in cooling tower systems should be accounted for. It is possible to develop and monitor a water balance for the system to ensure water consumption is managed and not wasted. To accurately measure water consumption the incoming make-up water, wash down water and bleed discharge water should be metered. Specific activities that consume water such as drain downs should be recorded and the consumption event noted.

An increased awareness of the amount of water used by cooling towers must be encouraged and plant management and maintenance practices need to be improved to reduce water consumption.

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A.G. Coombs
Together we achieve the extraordinary.

8.0 ENVIRONMENTALLY RELATED SERVICES

The A.G. Coombs Group provides leading industry specialist service at any stage of the building life cycle to minimise the environmental impact of air conditioning, electrical and fire protection systems.

- Integrated Design; Life cycle design for low ongoing environmental impact
- Installation; Construction practices to minimise installation waste & emissions
- Commissioning; Integrated HVAC & controls commissioning for Star Rated outcomes
- Maintenance; Enhanced services to improve performance and lower operating costs
- Operation; Management, monitoring, reporting and verification for total performance
- Advice; Industry leading advice to ensure the success of ESD initiatives

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In the financial year 2004-2005 specific environmentally related services provided by companies in the A.G. Coombs Group included:

- Independent Commissioning Agent for Council House 2, Melbourne's first 6 Star Green Star building
- Independent Commissioning Agent for Bendigo Bank Head Quarters in Bendigo
- Provision of senior technical advice for proposed new "Green" Melbourne Headquarters development
- Development of base building energy efficiency brief guideline for Commonwealth with Consultant team for Department of Environment and Heritage
- Major Melbourne Docklands Building (50,000m²) - Harbour Water Cooling and Waste heat freshwater generation feasibility studies – initial investigations.
- Major Collins Street building Ice Storage system review
- Facade infiltration testing advice for at major CBD (CIBSE Technical Method 23)
- 4 Star design enhancements for major Melbourne commercial development (20,000m²)
- Energy Efficient Building Modelling Project with Consultant team for Victorian Government

It should be noted that environmental aspects, energy and water efficiency in particular, are considered as a matter of course on many projects and contracts carried out by A.G. Coombs Companies.

9.0 TECHNICAL CAPABILITY DEVELOPMENT

In the financial year 2004-05 activities undertaken to enhance the technical capability of A.G. Coombs companies in the provision of environmentally related services included:

- Development of revised Servicing Technician Environmental Guidelines.
- Development of "Green Fire" fire protection systems design principles.
- Successfully achieved Green Star Designer Accreditation – 2 senior design engineers.

10.0 INDUSTRY AND COMMUNITY CONTRIBUTION

A.G. Coombs makes significant contribution through industry associations to the development of industry awareness and abilities with respect to environmental management. Industry involvement in 2004-2005 specifically relating to environmental issues included.

- Contribution to the development of draft Building Services Operation Sustainability Guidelines for Facility Managers Association Building Services Special Interest Group.
- Preparation of stakeholder input submission on behalf for the Facility Managers Association on Australian Green Building Council Green Star Office Asset existing building environmental rating tool and subsequent discussions.
- Steering committee membership Warren Centre for Engineering Innovation - Low Energy High Rise project steering committee
- Air conditioning & Mechanical Contractors Association (AMCA) Technical Committee on Sustainability - Development of AMCA Sustainability Policy and Plan
- AMCA representative on Australian Building Codes Board HVAC Technical Committee for Energy Efficiency Amendments
- Presentation to National Environmental Balancing Bureau (NEBB) AGM – "Green buildings and impacts on Commissioning"
- Advisory Notes – Managing Water Consumption in Cooling Towers
- Environmentally related comments to Department of Human Services (DHS) for their review of Water Treatment Service Provider Guidelines
- Input in DHS Guide to minimise water consumption in cooling tower systems.
- Article on Managing Water Efficiently in Cooling Towers for State Government publication
- Editorial Review Committee Royal Australian Institute of Architect Building Design Professionals Environment Design Guide – Regular review of papers for inclusion in Guide
- Preparation of Paper for Australian Institute of Refrigeration Air conditioning & Heating (AIRAH) National Conference on Systems Commissioning relating to environmental outcomes.
- Article published in FM Magazine "Towards the Green Age Building - Energy Efficiency and the Property Industry"
- Attendance at and written input to CSIRO Right Sizing Workshop
- Industry member of Department of Industry Science and Technology National FM Sustainability Taskforce
- Chair Property Council of Australia's National Energy and Utilities sub-committee
- Property Council of Australia representative on Australian Building Codes Board Steering Committee for Energy Efficiency Amendments to Building Code of Australia.
- Input into the Property Council of Australia submission to Federal Government for National Framework for Energy Efficiency

11.0 CONTINUOUS IMPROVEMENT

As part of the A.G. Coombs Continuous Improvement approach to business a significant ongoing program to improve Environmental Management in the A.G. Coombs Group is in place.