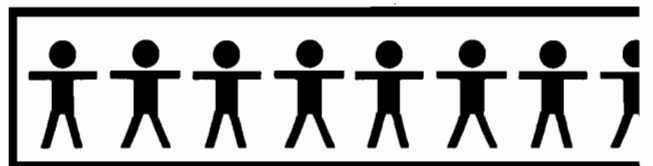


ENVIRONMENT PROTECTION AUTHORITY
ANNUAL REPORT 1988/89



VICTORIA

Report

of the

**ENVIRONMENT PROTECTION
AUTHORITY**

for the

Year ended 30 June 1989

Ordered by the Legislative Assembly to be printed

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CORPORATE OBJECTIVES

To improve the air, land and water environments for the people of Victoria through management of wastes, control of noise and control of pollution.

Government relations

Effectively and efficiently implement Government policies and legislation for environment protection, waste management and pollution control. Develop and provide timely advice to the Government on environmental issues.

Pollution control/waste management

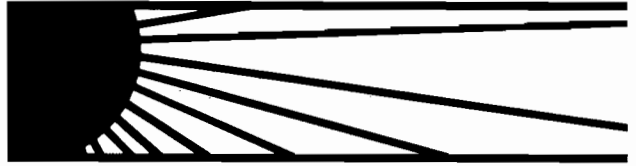
Develop and implement policies, strategies and the legislation for controlling the discharge of waste and the emission of noise. Promote and implement effective, efficient and environmentally-safe waste management policies and practices.

Environmental policy

Provide policy advice to the Government on issues. Develop policies and long-range plans for the protection of the environment, the management of waste and the control of pollution. Define levels of acceptable environmental quality.

Monitoring and research

Provide information and data from which to develop environmental objectives and control strategies and to assess the attainment and maintenance of objectives and standards.



Organisational management

Pursue objectives and carry out functions using efficient and effective financial and human resource management systems. Provide equal employment opportunity and encouragement for staff to attain a high level of skill, knowledge, commitment, performance and job satisfaction in the pursuit of the organisation's objectives. Provide efficient and responsive service to the public and industry in their dealings with the organisation.

Interdepartmental relations

Liaise with, and co-ordinate as necessary, government agencies in the development of policy, pursuit of environmental objectives and the implementation of specific programs. Identify and make use of appropriate skills and authorities in government agencies in achieving environmental objectives. Work closely with planning authorities in the provision of advice on the environmental implications of planning decisions.

Public awareness

Promote public interest and facilitate public participation in decision-making on environmental policy and discharge controls.

Publish and disseminate information on environmental quality and pollution control.



CHAIRMAN'S PERSPECTIVE



Over the past year, and particularly since Christmas, public interest in environmental issues has risen to an unprecedented level. This signals a developing environmental ethic within the community which now expects, and is demanding, a cleaner environment. EPA welcomes this increased concern for the environment, which it has striven for since its inception in 1972.

The community has a right to know about the environmental challenges which face our society. People must have access to information which will enable them to make informed decisions and choices about the impact their activities and demand for consumer goods have on the environment. Industry has a responsibility to ensure the community is fully informed about the impact products and production methods have on the local, regional and global environment. With a greater understanding of the issues and the reality of the risks in our industrialised society, the public can do more to help solve the problems we face.

During the time EPA has been operating, it has achieved significant improvements in the Victorian environment. Many of these have passed unnoticed by the general public who have suddenly become aware that caring for our environment is of critical importance.

While recognising that many serious environmental problems still confront us, we should also recognise that we are in advance of most countries. This gives us the opportunity to become leaders and set standards for others to follow.

EPA's draft waste minimisation policy and Clean Technology Incentive Scheme for small businesses have attracted international attention. Victoria's discussion paper on protecting the ozone layer became the basis for the national program and with the success of the EPA-sponsored conference on halons, EPA has been recognised as making a major contribution to the international debate on this important issue.



Brian Robinson

Global issues in general clearly came into prominent focus during the year. Environmental problems can no longer be considered solely in a regional context. Increasingly national and international concerns and decisions are impacting on local policy. It is important that Victoria develop mechanisms for input into the global forum where environmental issues are considered. EPA has strengthened contact with OECD and UN environment programs and with environment protection organisations in other countries. Our major input to international discussion however, remains through the Commonwealth. Since most of the practical experience on environmental issues lies with the States, greater State involvement in national delegation would enhance Australia's ability to contribute effectively to the resolution of global issues.

In meeting the global challenges, the co-operation of industry and the community in general is essential. Think globally and act locally applies to all. While corporate management appears to have picked up the need for environmental care, this has not in all cases, been translated to the workforce. There are still too many unplanned discharges, spills and transport accidents. It is time that all industry showed genuine concern for the environment by placing it alongside production targets and profits.

Merely acting to stay within the letter of the law is no longer adequate. Industry must integrate its activities to develop an environmental ethos at all levels of operation. To facilitate this, EPA has introduced Environment Improvement Plans which require industry to consider more closely the environment and the effects their operations have on local communities.

In support of this approach the efforts of the Australian Chemical Industry Council in developing its 'Responsible Care' program are to be commended. We hope for a successful implementation of that program throughout the industry and that other industries will follow this example.

Sustainable industrial development must be achieved and this will require industry to become more energy efficient, minimise waste and use resources sparingly.

Waste minimisation – reducing waste production, recycling and resource recovery is an EPA priority and is a key recommendation in EPA's submission to the present parliamentary inquiry into Melbourne's waste management.

Effective waste management is now of major concern to the community and EPA. Demands for industry to be responsible for its own wastes are increasing and EPA is developing policies to ensure industrial waste management is financially secure and on a 'polluter pays' basis.

The community and industry have become more interested in the advantages of recycling over the past year. More local councils are offering recycling opportunities and private industry has

started Australia's first comprehensive plastics recycling scheme. This will have positive environmental benefits by reducing the use of natural resources and conserving valuable landfill space.

Public concerns over the widespread impact chemicals can have on our environment are continuing to grow. These concerns are sometimes more based on perception than reality. EPA chemical education programs are designed to promote a better understanding of the dangers and use of chemicals, so that the public is better able to differentiate between major causes for concern and those about which there is little cause for concern. EPA has promoted greater effort in this area by all those involved at both State and National levels. Commonwealth legislation to introduce a national chemicals notification and assessment scheme is still awaited.

The draft State Environment Protection Policy – The Siting and Management of Landfills was released for public comment this year. The environmental problems associated with landfill are addressed by this draft Policy. The policy also makes provision for the control and utilisation of landfill gases to reduce the contribution these make to the greenhouse effect.

Finalisation of the Industrial Waste Minimisation Policy is almost complete. This follows consultations with industry, conservation groups and unions. This policy is expected to be declared by the end of the year and will be a major EPA platform in the 1990s. Environmental protection will itself become a wise investment and a growth industry.

The Industrial Waste Regulations have been improved and new regulations governing the collection and disposal of medical wastes have been introduced. The amount, complexity and environmental and health hazards associated with medical wastes are of concern and implementation of these regulations will ensure safe disposal. Permits and licences are now required for the handling of these

wastes, some of which must be incinerated at high temperature.

Contaminated site clean-ups have continued to occupy EPA staff and resources. Last year, EPA investigated overseas strategies for handling these problems. Few countries seem to be tackling this problem more effectively than Victoria. However a lot of useful information was gathered which will help in the selection of suitable strategies. Current EPA industrial licensing requirements should reduce the likelihood of new contaminated sites developing.

During autumn, the Motor Vehicle Branch ran a successful public campaign to reduce the number of smoky vehicles on Victorian roads. Car exhaust gases are a major source of air pollutants and more effort is required to reduce our reliance on the use of motor vehicles.

The upsurge in interest in the environment has focused more attention on Melbourne's air quality which continues to improve slowly as more cars use lead free petrol and backyard incineration becomes less popular. The air quality objectives are being reviewed against the most recent knowledge of health effects of air pollutants. This review is due for public release in late 1989. EPA's air monitoring must address areas of concern and our broadscale approach is in need of review. Airborne toxic compounds are a concern in specific areas and some means of directing part of our monitoring effort to include these concerns needs to be found.

The use of ocean outfalls for waste management is a critical issue with large sections of the community now questioning the use of this method of waste disposal.

All work on the proposed Latrobe Valley ocean outfall at Delray Beach has been halted and the State Government has called a public inquiry into the Valley's wastewater disposal problems. EPA's statutory systems of community involvement have proven to be inadequate by themselves in dealing with highly controversial proposals. Some means of more effectively providing for public involvement need to be found. Various alternatives are being explored but it is clear that EPA must

improve its ability to communicate with the community and find more effective means of getting information to the interested public.

The *Environment Protection Act* has been altered to give EPA additional powers. These include increased penalties through the Courts and the ability to issue pollution abatement notices and EPA infringement notices. These carry a financial penalty of up to \$400 and have been very successful as a tool to warn industry in both the public and private sector to have regard to the environment. To date, the Courts have been reluctant to make full use of the increased penalties which are now available to them for deliberate pollution.

EPA has continued to lose qualified staff to the private sector and other government departments. While the spread of environmental expertise has a positive side, the drain on EPA resources needs addressing. Renewed emphasis needs to be put on training within EPA as the organisation demands greater sophistication and skills from its staff. EPA must also find ways of improving the retention of experienced staff who are being lured to the private sector by higher salaries and lighter workloads.

Finally, I would like to express my sincere thanks to all EPA staff who have worked so hard during the year to meet the heavy demands placed on them. The dramatic rise in public interest during the year placed major strains on the organisation and its staff. The tremendous effort of staff in lifting their performance to deal with this situation says much for their motivation and commitment to the protection of Victoria's environment.



Brian Robinson
Chairman

THE CORPORATE GROUP



EPA Chairman, Dr Brian Robinson joined the Authority in 1975 as Laboratory Services Co-ordinator and was promoted to Chief Air Quality Officer in 1977.

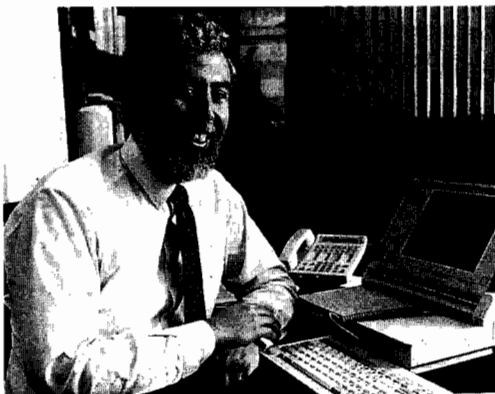
In 1980 Dr Robinson left EPA to take up a position with the Department of Premier and Cabinet. Dr Robinson returned to EPA in 1983 as Director of Water, Wastes and Chemicals.

Dr Robinson was appointed Chairman in December 1986.



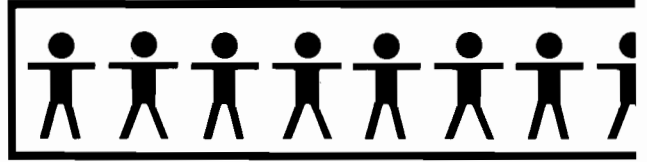
Dr David Horsman, Director of Operations is responsible for ensuring EPA effectively deals with pollution problems and issues in response to community demands.

Dr Horsman has been with EPA since 1980 and was Assistant Director Scientific Services prior to his current position.



Robert Joy joined EPA in December 1988 as the Director, Policy. Mr Joy is responsible for providing advice to the Authority and the Minister on environmental policy issues as well as developing and reviewing policies.

Prior to joining EPA, Mr Joy worked with the Department of Premier and Cabinet.



Director of Administrative Services, Wayne Saunderson joined EPA in 1986. Mr Saunderson manages finance, transport, records and information systems, personnel, and co-ordinates staff training and development.

Mr Saunderson also performs the statutory role of Secretary to the Authority.

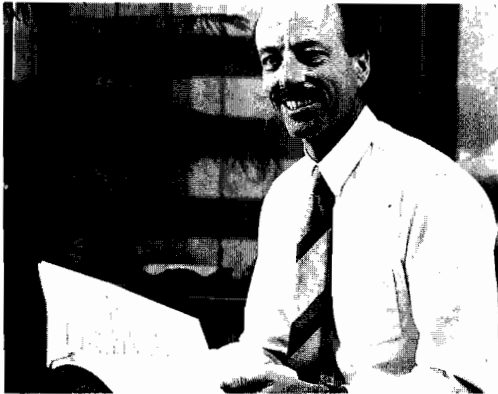


Dr Colin Gibbs (*Jeff*) and Dr Phillip Morgan have both acted in the position of Assistant Director for Scientific Services during the last financial year. The Assistant Director is responsible for providing scientific support to the Operations Division and developing EPA's research program for problem-solving and pollution prevention.

Dr Gibbs has been with EPA for one and a half years. Previously he was Principal Marine Scientist at the Marine Science Laboratories managing the Marine Chemistry section.



Dr Morgan was previously Forecaster and Analyst with the Bureau of Meteorology and has been with EPA for seven years.



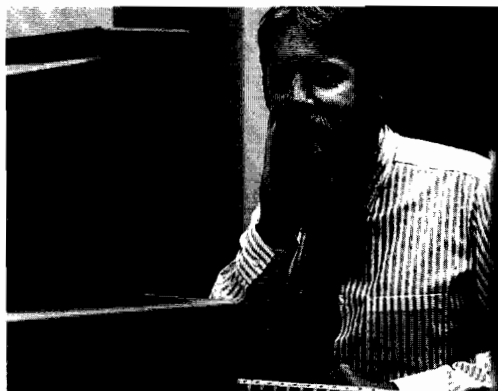
Assistant Director for East Metropolitan, Norm Parris manages EPA's response to pollution control, including activities such as works approvals, licences and complaints. Mr Parris is also responsible for ensuring that effective liaison occurs at the local level.

Mr Parris was formerly the Chief Noise Control Officer and has been with EPA for 17 years.



Dennis Monahan, Assistant Director for West Metropolitan, is responsible for managing EPA's pollution control program. Mr Monahan is also responsible for ensuring that industrial activity is undertaken with appropriate environmental safeguards and for allocating resources to priority areas.

Mr Monahan has been with the Authority for 13 years and was Project Manager, Hazardous Waste prior to EPA's re-structure.



As Assistant Director, Projects, Bill Farrell provides a technical overview for developing EPA's policy and special projects activities.

Mr Farrell has been with EPA for 14 years. He was previously responsible for the development of EPA's motor vehicles emission strategy.



Doug Munro, Assistant Director for Motor Vehicles, is responsible for EPA's control program to minimise air and noise pollution from all transport vehicles.

Mr Munro has been with EPA for 16 years and was Manager, Assessments and Research prior to the Authority's re-structure.



Assistant Director for the Country region, Carl Schaller, co-ordinates the Authority's pollution control programs in Gippsland, the South-West, and the Northern regions. Mr Schaller's work takes him to EPA offices in Geelong, Ballarat, Bendigo, Benalla and Traralgon.

Mr Schaller was formerly the Assistant Director, Waste Management and has been with EPA for 17 years.



As Principal Consultant, Environment Contaminants, Jeff Bazelmans is responsible for EPA's emergency response activities, co-ordinates strategies for the rehabilitation of contaminated sites and addresses chemicals management issues.

Dr Bazelmans first joined EPA in 1985 and then took up a position with Police and Emergency Services in 1988. Dr Bazelmans returned to the Authority in 1989.



Jack Chiodo is Principal Consultant of the Major Assessments Group and Manager of the Biomedical Waste Unit, and is responsible for the technical co-ordination of biomedical wastes and waste management strategies (including waste minimisation) for the entire healthcare industry.

Mr Chiodo has been with the EPA for 16 years and was Assistant Director West Metropolitan.



Doug Newton, Manager Recycling Unit, is responsible for developing commercial and domestic recycling schemes and statewide litter control. Mr Newton has been with the Authority for four years.



Acting Solicitor to EPA, David Mitchell, has been with the Authority for seven years. Mr Mitchell represents EPA in legal proceedings, advises staff on statutory responsibilities and provides advice and recommendations to the Authority on prosecutions and other legal matters.



Peter Fitz joined EPA in 1989 as acting Community Affairs Manager. Mr Fitz is responsible for media, publicity, publications, displays, launches, photographic and video services for EPA and co-ordinates community education and liaison activities.

Mr Fitz spent the previous three years in the Community Information and Education Division with the Ministry for Planning and Environment.

EPA'S APPROACH

The preservation of our environment is increasingly recognised by the public as one of the most important issues facing our community today.

Since its inception, EPA has been dedicated to solving pollution problems caused by ignorance or inattention to environmental concerns. However, EPA's approach is much broader than this. It aims to prevent pollution as much as possible, rather than solving problems after they occur. It is this combination of forward planning and remedial action which characterises EPA's work today.

Prevention is important, since in many cases a degraded environment cannot recover to provide the same benefits that it supported in its unaffected state. Even where recovery is possible, it is much less cost-effective than prevention.

The scope of the *Environment Protection Act* reflects this dual approach. EPA is responsible for setting standards of environmental quality to protect human uses of the environment, both now and in the future, as well as to preserve the natural qualities which are so important for their own sake. These standards are set in State Environment Protection Policies (SEPPs).

A major tool in maintaining these standards is the works approval and licensing system. Major industries, and other potentially polluting activities, need EPA approval before any new work can begin. This system ensures that proposals to discharge to the environment are examined in close detail to make sure that the environmental conditions are preserved. If there are doubts, the work is not approved.

If approval is given, EPA sets performance standards for the plant by issuing a licence. Licences contain legally-enforceable requirements covering the operation. These usually include a monitoring program where a discharge is involved, and regular reporting. A company may be prosecuted for any deviation from these performance standards.



Existing industries, and smaller concerns not covered by the works approval system, must still meet the standards set by EPA. Where examples of pollution are discovered, or a danger of pollution exists, EPA can issue pollution abatement, or noise control notices. These compel the occupier of premises to change the procedures used in order to eliminate the environmental risk. Furthermore, EPA can issue clean-up notices where a site has been contaminated, and the occupier must pay all costs to fix the problem.

All these activities must be based on scientific information. EPA has a strong base of expertise in environmental monitoring and ecology, which helps to set environmental standards and to predict the effects of discharges. Its skills in engineering processes are vital in assessing proposed works and in negotiating with industry. These provide a powerful base to handle the complex and challenging job EPA faces.

EPA works closely with industry to encourage it to produce less waste. Often, attention to good plant management is all that is required, although advice and incentives to install appropriate technology are also necessary.

Some pollution problems require a national, or an international approach. EPA's strong record in environmental control has made it a leader in many of Australia's efforts to develop national strategies for solving pollution problems. Consistency between the States in their pollution control practices is important to limit the tendency to locate industries where pollution controls are less stringent. On the international stage, EPA's response to global issues has strongly influenced the Australian Government's position in the forefront of countries responding to the threat to the ozone layer.

EPA: PROTECTING THE ENVIRONMENT

Australians must realise that our individual actions in our homes, the consumer products we choose and the way we spend our leisure time all affect the quality of our environment. We face daily choices in our lives and we need to balance the risks of these actions against the benefits. EPA has a major role in making people understand that they are part of the pollution problem as well as its solution. Accordingly, EPA needs to continue to play a significant role in educating and involving all levels of government, industry and local communities in environmental decision making.

We now recognise through problems such as ozone depletion, global warming and pollution of land, skies, seas and waterways, that the quality of the environment in Australia is also dependent on how the rest of the world treats our planet. A major challenge will be to assist and educate other nations and encourage world agreements to protect the global environment.

Global Issues

The depletion of the ozone layer and the greenhouse effect have attracted a great deal of media attention during 1988/89. As a result, the community is well aware of the environmental implications of these global issues.

Because of our climatic conditions and the already high incidence of skin cancer, Australia, together with other nations, must take an active role in controlling ozone-depleting substances and greenhouse gases.

Ozone depletion

During the year, Parliament passed the *Environment Protection (Ozone Layer) Act*. This amends the *Environment Protection Act* so that it adequately controls the manufacture, sale, disposal and emission of ozone-depleting substances. Failure to comply with the Act carries maximum penalties of \$10 000, \$20 000, and \$500 000 and five years' jail for aggravated pollution.

The Environment Protection (Control of Ozone-depleting Substances) Regulations 1989 were enacted to ban the manufacture of a number

of products that either contain or use chlorofluorocarbons (CFCs) in their manufacture.

Victoria is committed to reducing the consumption of ozone-depleting substances as fast as practicably possible. In February 1989, EPA released a draft options paper for public comment. This paper set out possible options for reducing CFCs and halons in Victoria.

A review of all industries that use these chemicals was conducted and a strategic plan produced to establish a timetable to phase out their use in Victoria. The paper set a target of 95 per cent reduction by 1996.

The options paper was used as a basis for the Australian Environment Council (AEC) to formulate a national policy, 'AEC Strategy for Ozone Protection'.

Victoria is preparing a regulatory program to implement the 106 recommendations in the national policy, which aims to completely phase out CFCs and halons in Australia by 1998.

As well as developing effective controls, EPA has been actively involved in raising public and industry awareness about ozone protection.

A regular publication 'Global Pollution News' was produced, providing the public with up-to-date information on developments in Australia and overseas on ozone protection and the greenhouse effect.

EPA organised a national symposium in May 1989 about ozone protection and the future of halons. Additional seminars for a variety of CFC applications are planned next year to assist industry to meet the tight timetable outlined in the national policy.



One area where action can be taken immediately is the recovery and recycling of CFCs from discarded car air-conditioners and domestic refrigerators. The Victorian Government has provided funds for a pilot scheme with South Melbourne and Berwick Councils. Commonwealth Industrial Gases (CIG) has also supported this pilot scheme. If this program proves successful it could be extended across the State.

Greenhouse effect

Climatic changes as a result of the greenhouse effect may have important impacts on agriculture, forestry, fisheries, tourism, water supplies, urban infrastructure, natural ecosystems as well as coastal planning.

EPA has provided \$50 000 and some staff time to the Commonwealth Scientific and Industrial Research Organisation (CSIRO) to conduct greenhouse research to predict sub-regional changes resulting from global warming.

As part of the interdepartmental contact group EPA has also contributed to the preparation of the Government's discussion paper "The Greenhouse Challenge", and is examining the implications of the control of greenhouse gas emissions on its control strategies and SEPPs.



Keynote speaker at The Future of Halons Symposium Dr Stephen Andersen from the United States Environmental Protection Agency addresses the symposium while guest MC and Channel 9 television presenter Rob Gell looks on.

The Air Environment

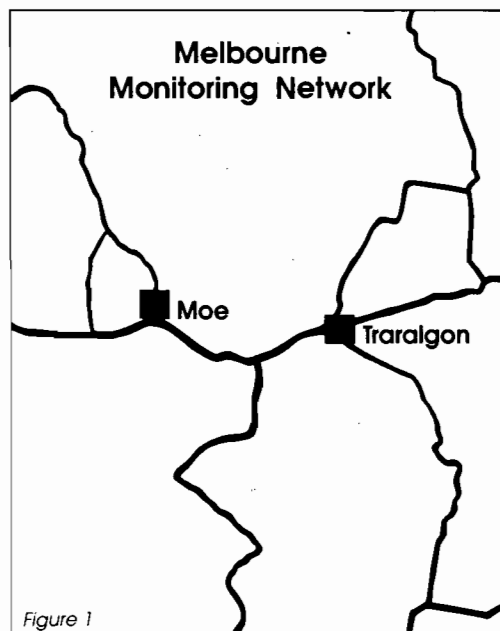
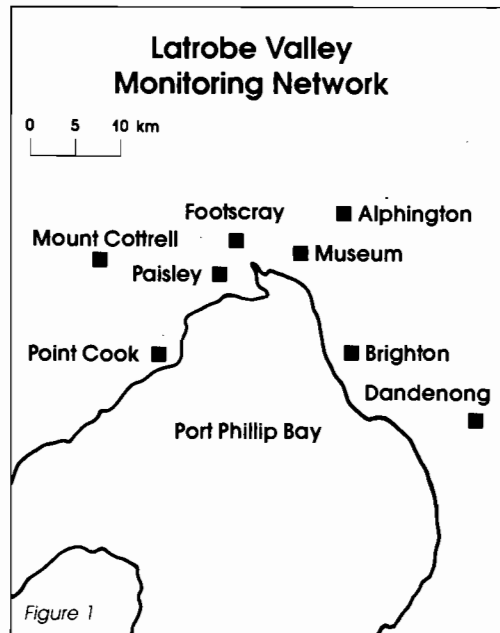
The Port Phillip region is home to approximately 75 per cent of Victoria's population and about 80 per cent of the State's secondary industry. Almost all the State's power-generating capacity, and some of the remaining secondary industry, are located in the Latrobe Valley. There are also some major industrial premises in the Westernport region and at Portland, but their size and scale are relatively minor in comparison with those of the Port Phillip and Latrobe Valley regions.

The concentration of industry and population, combined with a heavy dependence on the motor vehicle, has resulted in regional air pollution problems in the Port Phillip and Latrobe Valley regions, particularly for Melbourne and Geelong, with more localised problems elsewhere.

Objectives for regional air quality were established in 1981 with the declaration of the State Environment Protection Policy (SEPP) (The Air Environment). The level of air quality can be assessed by comparing ambient monitoring readings against these objectives. EPA's air monitoring networks, currently operating in the Melbourne and Latrobe Valley regions, are shown in *Figure 1*.

In general, EPA's monitoring shows that air quality in Victoria is good apart from episodes of photochemical smog in Melbourne and possibly Geelong, and of poor visibility in Melbourne and the Latrobe Valley. A third relatively minor problem is airborne lead.

Motor vehicles are the most significant contributors to air quality problems in the Port Phillip region. Local air quality problems arise from residual or fugitive emissions from specific industrial premises, causing odours or particulate deposition in the immediate vicinity.



Pollution control strategies

Since the declaration of the air SEPP in 1981, EPA has been implementing strategies to control photochemical smog and visibility-reducing airborne particles. Nowadays the community is more aware of pollution episodes as a result of EPA issuing smog alerts when appropriate weather conditions are forecast.

Smog reduction strategies include the introduction of unleaded petrol (ULP), tighter restrictions on motor vehicle emissions, regulations for the storage and transfer of volatile organic liquids as well as specific controls on industrial processes emitting hydrocarbons.

Visibility improvement strategies include an initiative to persuade local councils to adopt EPA's model incinerator by-law, a campaign to report smoky vehicles, and the annual Clear Air public awareness campaign, advocating composting and recycling as better alternatives to incinerators and open burning.

Backyard incineration and open burning contribute an estimated 45 per cent to total particulate emissions. Although its control is traditionally the responsibility of local government, EPA has developed a model incinerator by-law to help control this unnecessary source of pollution.

EPA's model by-law bans burning on smog alert days; restricts backyard incineration and open burning; and, bans the burning of certain materials.

Since March 1988, EPA has approached councils in the Melbourne and Geelong areas, as well as major provincial cities, to strengthen their backyard burning by-laws. While progress has been made, EPA will continue to apply pressure to councils to have them adopt its model by-law.

Several rural shires and provincial city councils are considering enacting or amending backyard burning by-laws. In these cases EPA has advised how the model by-law can be modified to meet local circumstances.

Other strategies are also being pursued. The reduction in airborne lead levels is another target of the ULP strategy. Nitrogen dioxide emissions are being additionally reduced as a result of the works approval and licensing processes.

Progress and trends

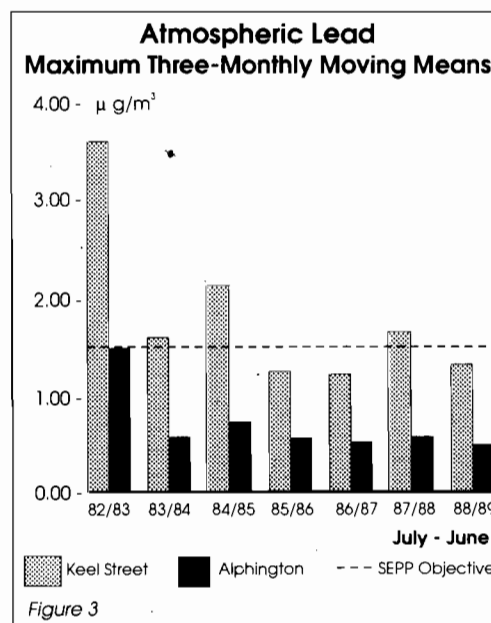
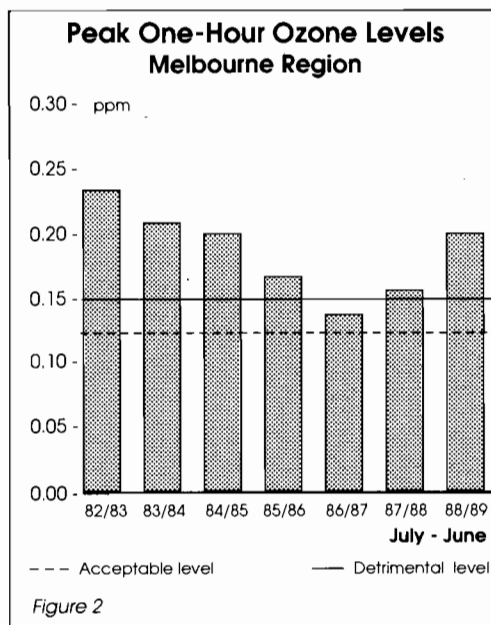
The success of these strategies should be evident from the trends in the monitoring data for the relevant pollutants. If a control strategy is effective, a fall in peak concentration over a number of years should be observed.

The annual peak one-hour concentrations for ozone (the principal constituent of photochemical smog) for the Melbourne region are shown in *Figure 2* for 1982/83 to 1988/89. Between 1982/83 and 1986/87 there was a marked decline in peak ozone, indicating that the control strategies were effective.

Since 1986/87 there has been a rise in the peak concentrations. While this could be due to meteorological factors it could also indicate that previous control measures have reached the limit of their effectiveness, or that a change in emphasis may now be needed. However the ULP strategy has only affected 25 per cent of the motor vehicle fleet to date. It is still too soon to assess the effectiveness of this strategy.

The maximum three-month averages for lead for 1982/83 to 1988/89 are shown in *Figure 3* for two sites in Melbourne. The Keele Street site is 25 metres from a road with heavy volumes of traffic. The Alphington site is an ambient monitoring station away from major roads.

There was a dramatic decline in peak lead concentrations in 1983/84 at both sites following the one-third reduction in the concentration of lead in fuels. Since then, the peak values at the Keele Street site have fluctuated around the air SEPP objective. At Alphington, they have remained well below the objective and have changed little. These data tend to indicate that the ULP strategy is already effective for lead. Without the strategy, lead levels would be expected to have increased in recent years with the growth in vehicular traffic.



Current status

Monitoring data and policy compliance

The air SEPP sets objectives for the six most common air pollutants: carbon monoxide, photochemical oxidant (measured as ozone), nitrogen dioxide, sulphur dioxide, visibility-reducing airborne particles and lead.

Historical monitoring data show that carbon monoxide levels are consistently well below air SEPP objectives. As a result, it is not routinely monitored at any sites except the baseline stations in each network which record all major pollutants.

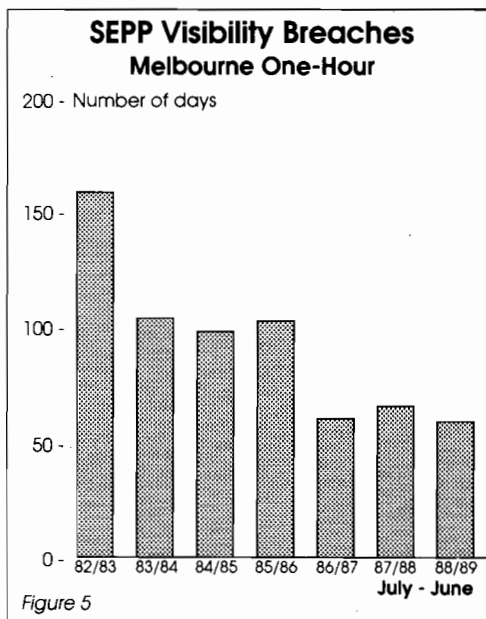
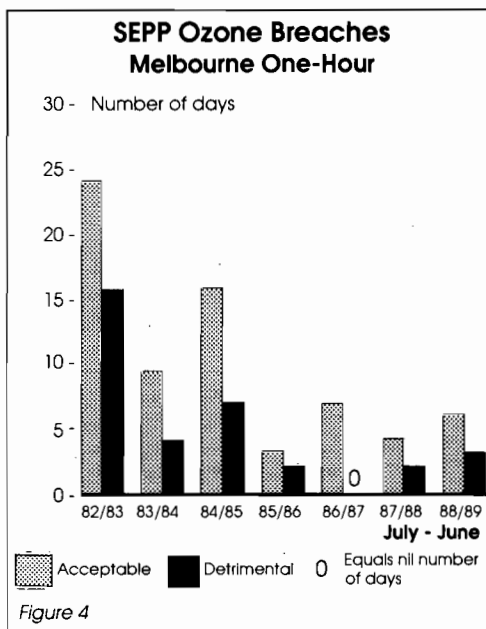
Sulphur dioxide is monitored at baseline stations and areas where refineries or petrochemical industries are located and emissions are known to be comparatively high at times. The remaining four pollutants are measured throughout the monitoring networks.

In recent years the only recorded breaches of the air SEPP objectives have been for photochemical oxidant (ozone), visibility-reducing particles, and lead.

Melbourne region

Figure 4 shows the breaches of the one-hour acceptable level for ozone in Melbourne between 1982/83 and 1988/89. A major factor influencing the number of ozone breaches is the weather during summer.

Breaches of the visibility objective for the same period are shown in Figure 5. Following the dramatic fall after 1982/83, the number of breaches stabilised at between 90 to 95 per annum for three years before again falling to between 60 to 65 per annum over the past three years. While weather conditions have played a part in these reductions, it is likely that the annual Clear Air campaigns have had some effect. In recent years these campaigns have targeted particular sources of visibility-reducing particles, such as smoky vehicles.



Latrobe Valley region

There have been no recorded breaches of the one-hour ozone objective in the Latrobe Valley since monitoring began more than a decade ago. However, there have been intermittent breaches of the eight-hour acceptable level as shown in *Figure 6*. Aside from the comparatively high number of breaches during the hot dry summer of 1982/83, there have only been a total of three breaches in the subsequent six years. These data confirm the insignificant nature of the photochemical smog problem in the Latrobe Valley.

Breaches of the visibility objective in the Latrobe Valley are a problem, as the data in *Figure 7* show. Although it is not as serious a problem as in Melbourne, the objective is consistently breached approximately 30 days each year. The frequency of breaches has been relatively constant over the past six years. There is no evidence of a trend towards a decline, except that the number of breaches for 1988/89 is the lowest for some years.

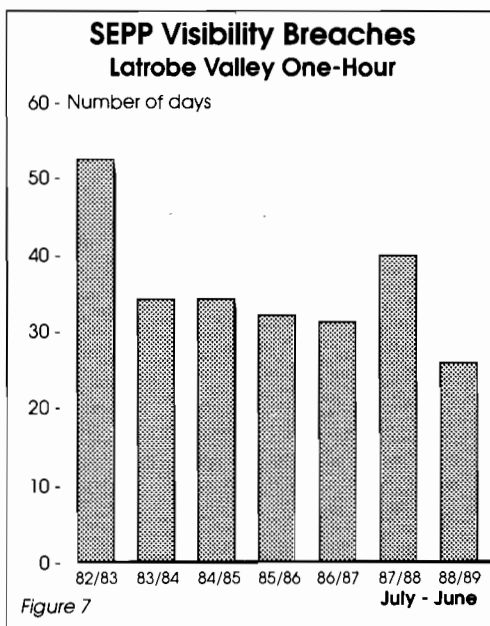
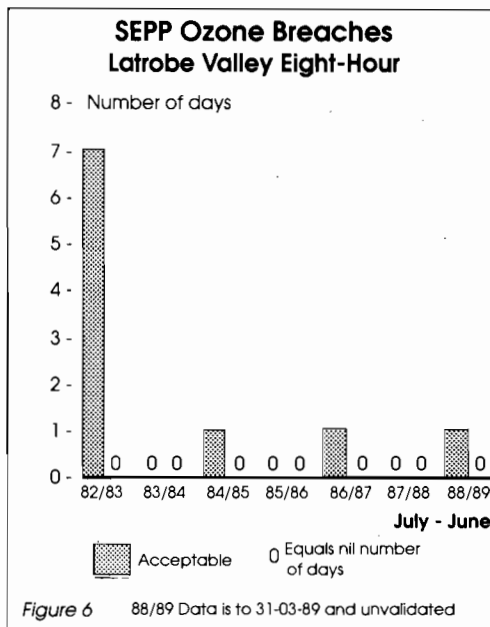
Emerging issues

Photochemical smog and poor visibility remain the regional air quality issues to be solved. The implication of the trend in peak ozone values is that smog controls, principally on hydrocarbons, may not be as effective as expected.

In April 1988, a discussion paper was released for public comment on the air SEPP as a first step to an overall review. EPA appointed Dr Jonathan Streeton to review the health based-objectives. Any changes to the objectives will require a reassessment of control strategies and possibly changes to emission requirements.

There is a growing concern regarding the chemical nature and health effects of airborne particles. Currently the air SEPP only refers to the aesthetic impact of these particles, or their effect in reducing visibility. Some criteria for their health effects are expected to be incorporated into the SEPP in the future.

Recommended buffer zone distances are being reassessed as part of the review, to make them more relevant to Victoria in the 1990s.



The principles of pollution prevention and waste minimisation will be a major thrust of the revised Policy. Clean technology will be encouraged and the emission of airborne particles will be reduced to the lowest feasible level.

Current activities

EPA's current efforts are directed at developing and implementing air quality management plans for the Port Phillip and Latrobe Valley control regions. Key steps include adequate monitoring data; completing the relevant airshed studies; compiling a comprehensive emissions inventory; developing and validating models to simulate the meteorology and chemistry in the airshed; and, then using these models to simulate the effects of various control strategies to determine the optimum one.

Future issues

Emphasis in regional air quality issues appears to be shifting away from the common pollutants, such as ozone and fine airborne particles. Priority is now being given to source-specific pollutants such as odours; volatile organic compounds such as benzene; combustion products produced in low concentrations but considered harmful; and, some ubiquitous chemicals such as dioxins.

These 'air toxics' are not regularly measured. Because of their very low ambient concentrations they are technically difficult and very costly to monitor on the scale being sought by some groups. Practicable approaches, including personal monitoring, are being examined by a working group. It may become necessary to divert resources from the ambient monitoring program to initiate work in this area.

The Water Environment

Over the years, steady increases in urbanisation have led to a range of environmental problems. EPA will not be able to effectively control some of these problems. However, sewerage of urban areas does reduce nutrient loads and bacterial contamination in adjacent waterways. EPA has worked with relevant authorities to facilitate sewerage. As a result, improvements have been seen in lower bacterial levels, particularly at bay beaches.

Urban stormwater run-off is still a significant problem. Urban areas accumulate a variety of environmental pollutants, which are washed into stormwater drains, creeks, rivers and eventually to bays. Treatment of this run-off would alleviate many water quality problems experienced by urban waterways, but the cost involved would be extremely high. Experimental work using artificial wetlands to treat stormwater run-off shows promise in dealing with this problem in some areas.

Gold mining using ore crushing and the mercury amalgam process, has resulted in the presence of mercury throughout historical mining sites around the State. This situation has been partly responsible for elevated mercury concentrations found in fish caught in Port Phillip Bay decades later.

Agricultural practices, initiated in pioneering times, have led to additional burdens on the environment. The public has become aware of these stresses, such as the persistence of pesticides and their accumulation in edible tissue or drinking water supplies, and salinity.

EPA remains concerned about the presence of toxic metals and organics, pathogens, and nutrients in Victorian marine waters resulting from the pressures associated with steady urbanisation, growth of industry and agriculture, fishing activity, and navigation as well as port development.

How problems are tackled

EPA addresses aquatic environmental problems through SEPPs which specify beneficial uses and water quality objectives for their protection. These objectives are attained by effective catchment management, waste discharge control and monitoring (chemical and biological), and supported by relevant research. Broadly-based investigations of major emissions and water bodies play an increasing role in the control process.

Achievements/progress

Increasing the scope of environmental monitoring

Sediments are a sink for many materials and therefore the pollution status of a water body cannot be fully appraised without reference to pollutant levels in sediments as well as overlying water. Analysis of biologically-available metals in sediments has been introduced as part of the marine fixed-site network.

A database has been developed in conjunction with the Department of Conservation, Forests and Lands (DCFL) to compile and enhance the quality of data on fish-mortality incidents. As fish are sensitive indicators of the health of the aquatic environment, this database will help identify problem areas.

Regular analyses of persistent pesticide residues in fish are being carried out with the assistance of the Arthur Rylah Institute for Environmental Research. This project began in early 1989 and will provide information on:

- the fate of these pesticides in terms of movement from agricultural land;
- health concerns to those eating fish;
- identifying streams with contamination problems; and,
- actual trends over time; whether the levels are easing or worsening.



EPA's Environmental Studies Section conducts a wide variety of research work. Scientists Wai Chek (front) and John Fisher review progress on an experiment.

Improving information on inputs

Mercury levels are under scrutiny in sand flathead and other fish in Port Phillip and Corio Bays. As a priority of the State Conservation Strategy, further work was conducted to identify mercury inputs to these Bays.

Further work has also been carried out to locate significant inputs of coliform bacteria to Port Phillip Bay. EPA continues to liaise with sewerage authorities to encourage sewer connection, thereby continuing the downward trend in waterborne bacterial levels in the Bay.

The Port Phillip Bay input monitoring program, re-designed to include storm events, has shown the importance of these episodes to the nutrient load entering the Bay from streams and rivers.

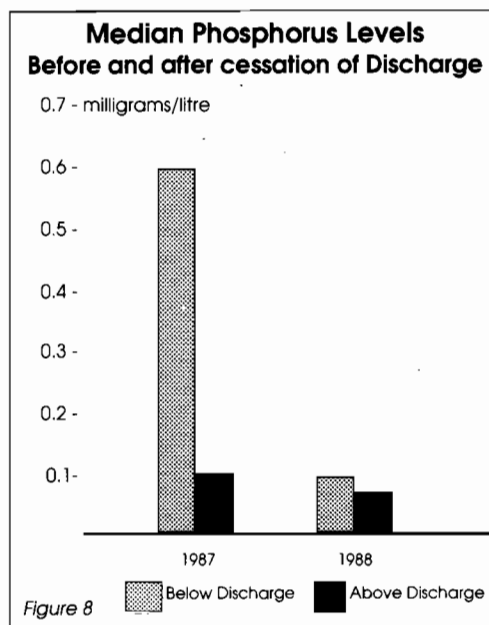
EPA is continuing to evolve its approach to the control of complex effluents through the licence review process. Studies on the chemistry and toxicity of oily water discharges to local bays will provide a sound basis for effective control as well as serve as a model for complex effluent regulation.

Studies relating input to beneficial use

Research on the impact of nutrients on Port Phillip Bay confirms that the level of dissolved oxygen near the bottom can fall significantly under certain weather conditions. This is a potential threat to organisms living in or near the sediment. Work is in progress to establish the link between oxygen reduction and nutrient load.

EPA continues to support work by the Victorian Institute of Marine Science towards developing a hydrodynamic model for Port Phillip and Corio Bays. Work on the model, which will be valuable in predicting plume and pollutant dispersion, is close to completion.

Three years after the declaration of the Wimmera River SEPP, the Horsham Sewerage Authority ceased discharging effluent to the River. This occurred on schedule in May 1988. Median total phosphorus levels in the Wimmera River below the discharge have fallen from 0.59 mg/L to 0.081 mg/L. This improvement can be easily seen in *Figure 8*.



Status of major water bodies

The three-year comprehensive study of Corio Bay being carried out for EPA by MSL has been completed, with the final report due soon. The study assessed the ecological status, and metal and hydrocarbon contamination resulting from urbanisation, poor flushing and point-source discharges. The results will form the basis for a management program.

Trends

Port Phillip Bay

Chlorophyll *a* levels fell initially in the Werribee vicinity following commissioning of the Board of Work's Carrum treatment plant. However, with the continuing program of connections to sewer, the nutrient load to the Werribee Farm has subsequently increased. Recent time-trend analysis shows that chlorophyll levels near Werribee have risen above the pre-Carrum values and are continuing to rise. These results will be taken into account when framing the revised nutrient conditions for the discharges.

On the other hand, chlorophyll *a* levels for the north-eastern coast of the Bay are falling. This trend is probably a reflection of controls on nutrient inputs to the Yarra River system.

Corio Bay

Data from the survey of heavy metal levels in mussels in Corio Bay have been compared with results from a decade ago. Lead levels are below the health limit, and the same is now generally true for cadmium, the major problem in the past.

Mercury concentrations in Port Phillip Bay fish have remained environmental and health issues. Limited sampling for mercury in fish was conducted last year and indicated that levels in Corio Bay sand flathead are currently below the health limit. In addition, MSL has analysed mercury in fish, including sand flathead stored from 1985/86 collections taken at various locations throughout Port Phillip and Corio Bays. Results show that Corio Bay fish were no higher in concentrations of mercury than those from Port Phillip Bay.

Western District Lakes

Lake Colac has been the subject of much attention in the last financial year. Algal blooms and midge insect infestations were contributing issues to the local community forming a consultative committee. Lake management options have been discussed within this committee, with advice provided by local agency representatives, including EPA.

One aspect of the Lake's water quality is its high nutrient status. A critical nutrient in this Lake is total phosphorus. Monitoring indicates that levels are decreasing (see *Figure 9*). However, concentrations in the water are still far too high. EPA is planning to investigate methods to improve the high nutrient status by using mathematical models to simulate a range of waste disposal scenarios.

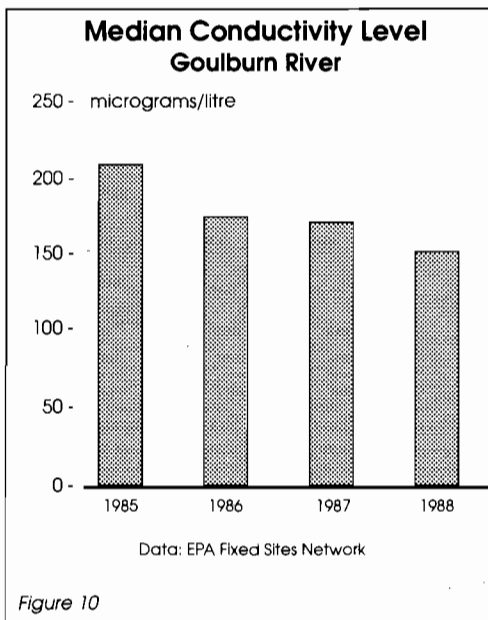
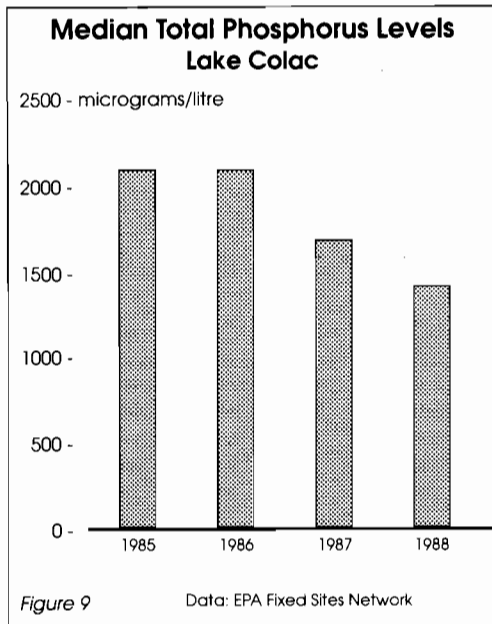
Northern region

The Goulburn River presents a reversed state when compared to the flow regimes in normal streams. Its flow is much higher in the summer months, at least at the upstream end below the Eildon Reservoir. Irrigation dictates the nature of released flows and these waters are required in the hotter, drier time of the year. This unusual flow regime complicates interpretation of trends, but salinity has been noticeably decreasing over recent years in the waters of the lower end of the River, at McCoy Bridge (see *Figure 10*).

Current status

Port Phillip Bay

As in previous years, compliance for phosphorus last year was very low. However, the levels are not of major concern since nitrogen is the limiting nutrient in the Bay. The Port Phillip Bay SEPP was first declared in 1975 and EPA acknowledges that a review of the Policy is necessary.



Gippsland region

Lakes Victoria and King recorded low compliance for dissolved oxygen in their waters. This may be caused by the unusual salinity regime of these eastern Lakes, where for much of the year mixing of waters is poor because of the underlying layer of saline water. This salinity stratification is believed to be linked with the occurrence of severe algal blooms.

Lake Wellington, while not subject to severe algal blooms, has a turbidity problem. This has been linked with loss of vegetation at the edges and bottom of the Lake, which is again associated with salinity. EPA's Gippsland office is continuing to study aspects of these Lakes.

Lake Coleman

Lake Coleman has been the focus of considerable public and media attention. An EPA report which reviews chemical and biological data is being prepared and will be released soon. Early indications show some improvement in water quality as a result of changes in the water regime and the effluent received from Dutson Downs. Salinity and eutrophication issues will emerge when this discharge ceases.

Metropolitan region

In 1988, turbidity compliance was 100 per cent in the Yarra River. However, the suspended solids component was high enough to lead to non-compliance at half of the sites. Because turbidity is caused by fine-grained material in the water column, this may reflect a shift toward coarser-grained material being carried by the River. However, further work will be undertaken to test this hypothesis.

The lower ends of Mordialloc Creek and Patterson River recorded poor compliance for suspended solids in 1988. Dandenong Creek compliance was good in 1988, while not 100 per cent. Preliminary work carried out by EPA revealed that a major source of suspended material is bed and bank erosion, coupled with extensive industrial and light industrial development in the southern Dandenong

region. Land clearing associated with development, results in large areas of bare ground and subsequent erosion problems.

Practically all chromium data for the lower end of Kororoit Creek failed to meet the SEPP objective, compliance being only 13 per cent. This pattern should change for the better in 1989/90 when the source, Petroleum Refineries of Australia cooling water, goes to sewer.

Northern region

High concentrations of suspended materials led to poor SEPP compliance for suspended solids at the lower ends of the Goulburn and Loddon Rivers. This performance reflects the disturbed nature of the catchments of these large streams, and the impact of large-scale flow regulation in the Goulburn.

South-western region

Several Western District lakes recorded very low SEPP compliance for nutrients in 1988/89. Nutrients involved were phosphorus in Lake Burrumbete, and nitrogen in Lakes Bullen Merri and Burrumbete. It is generally accepted that phosphorus is the more critical nutrient in freshwater systems, but some of these Lakes are quite saline and possess unknown nutrient/algal dynamics. No licensed point source discharge is allowed to any of these Lakes, and reasons for the poor compliance are not completely understood. EPA will undertake an investigation into the nutrient levels during 1989/90.

Current focus

Wetlands

EPA has allocated significant resources to investigate various aspects of wetland ecology. Airey's Inlet has been studied to determine the environmental impact of an additional stormwater drainage system.

Another research project was at Macleods Morass, near the Gippsland Lakes, to evaluate a sewage discharge impact. The effectiveness of artificial wetlands as nutrient filters for treating urban run-off has been studied adjacent to Cherry Lake in the western suburbs.

Toxicology

EPA is currently testing the toxicity of mine de-watering effluents against local sensitive aquatic species. A number of different techniques are being used to reflect toxicant-induced stress in organisms.

With the assistance of the Arthur Rylah Institute, EPA will review its toxicity methods in 1989/90 to determine whether these are the most effective practices.

Biocides

The discovery of pesticide residues in beef cattle has led to a growing awareness of the dangers of biocide spraying. EPA has undertaken studies in areas where intensive biocide spraying is conducted. One disturbing finding to come out of this work is that DDT may be still being used even though it was banned in 1980. EPA has liaised with the Department of Agriculture and Rural Affairs who will investigate possible sources of DDT use (*see Rural Victoria section for further details*).

Nutrient studies

Victoria is subject to stretches of sunny, hot, still days in summer. These conditions are right for algal blooms which can only be sustained by the presence of nutrients. To gain a greater understanding of the interaction of nutrient levels and algal blooms, EPA will fund a project on the Gippsland Lakes, to be undertaken by MSL.

Organotin marine antifouling paints

Antifouling paints are used by the boating industry to prevent growth of marine organisms on the hulls of vessels. This growth is undesirable as it increases drag and subsequently adds to fuel consumption.

Tributyl tin (TBT) antifouling paints have been widely used because of their effectiveness. However, research has demonstrated many adverse effects of the highly toxic TBT to non-target organisms, especially oysters and other shellfish. Even extremely low levels of TBT in marine waters can result in deformities and reduced growth rates. A joint study by EPA and

MSL in 1988 found unacceptably high levels of TBT in some Victorian waters.

The Environment Protection (Organotin Antifouling Paint) Regulations came into effect on 1 June 1989, banning the application of TBT antifouling paints on boats 25 metres or less; piers; buoys; moorings; and, any other marine or estuarine structures.

The Department of Agriculture and Rural Affairs introduced a proclamation under the *Agriculture Chemicals Act 1958*, restricting the amount of TBT paint that can be sold per day, and requiring the purchaser to have written permission from EPA to use it.

These steps should see a reduction in the levels of TBT in Victorian waters, although quantities locked up in sediments will take a number of years to degrade.

Waste Management

Off-site treatment and disposal of Victoria's liquid industrial waste continued to receive close attention during 1988/89. The volumes remained relatively static with 57 000 cubic metres per annum of general liquid wastes, and 39 000 cubic metres of oily wastes. However, industrial grease trap wastes more than doubled following strong EPA enforcement action against a number of operators for failing to comply with the requirements for prescribed wastes. As a result of this action, 20 permits were suspended, 13 accredited agents status were withdrawn and 17 infringement notices were issued. Further legal action is pending in a number of more serious cases.

Since the Tullamarine secure landfill ceased accepting liquid waste in 1987, the Board of Works' temporary Vicwaste facility, also at Tullamarine, has provided an important service to industry. This is scheduled to close in 1990.

To assess the private sector's capacity to meet the ongoing needs of industry after 1990 and to identify any deficiencies, EPA commenced an audit of the waste treatment industry as well as waste generators. This is being conducted on a confidential basis by independent consultants and will provide the basis of advice to Government on future needs in this area, including any need for Government facilities.

Waste minimisation

EPA has introduced a waste minimisation program, designed to make industry aware of the environmental and economic advantages of waste avoidance. EPA established a task force during the year to promote the waste minimisation philosophy and advise industry on alternative low waste technologies.

EPA is developing a waste minimisation policy to establish guidelines as well as statutory support for the program. This policy is expected to be adopted in 1989 and will ensure that waste minimisation options are closely examined before new projects are commenced.

Clean Technology Incentive Scheme

In September 1988, EPA launched the Clean Technology Incentive Scheme which provides financial assistance to selected companies installing technologies or processes which will reduce the amount of industrial waste generated.

During the financial year, 15 companies were assisted under the scheme (see *Appendix U*). Projects ranged from a water-based system to clean electronic circuit boards as an alternative to CFC cleaning baths, to a cyanide-free heat treatment system.

The scheme is aimed at promoting the concept of waste minimisation in small businesses in Victoria. The scheme is an integral part of the waste minimisation program which will be the major philosophy behind EPA operations in the 1990s.

Intractable wastes

Australia does not have proper disposal facilities for intractable wastes. These wastes, harmful to the environment because they do not breakdown easily, include wastes containing hexachlorobenzene, polychlorinated biphenyls (PCBs) and pesticides, such as DDT and dieldrin.

These wastes are currently disposed of at a high temperature incinerator overseas.

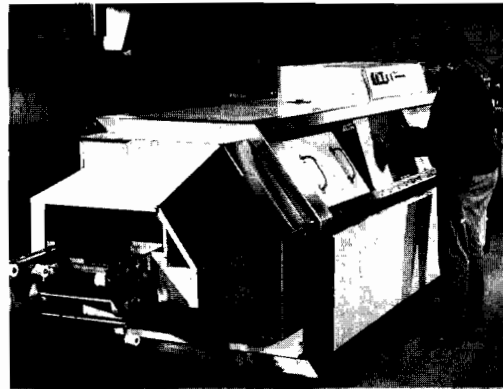
In early 1987, the Commonwealth, New South Wales and Victorian Governments agreed on a co-operative approach to solving Australia's intractable waste disposal problem and established an independent task force to address this issue.

EPA is assisting the task force by providing information on waste quantities, legislative needs and administrative systems for the effective minimisation, transportation and disposal of these wastes.

A community consultation process has commenced to identify a suitable site for the incinerator facility.



EPA Chairman Brian Robinson introduces Minister for Planning and Environment Tom Roper (left) to launch the Clean Technology Incentive Scheme; also in attendance was EPA Community Affairs Manager Peter Fitz.



The Clean Technology Incentive Scheme enabled Eagle Technologies Pty Ltd of Moorabbin to purchase machinery that uses a water based cleaning system to replace a CFC dip previously used in the manufacture of electronic circuit boards.

Medical wastes

In its May 1988 report, the Advisory Committee on Hospital Wastes Disposal identified inadequacies in the handling and disposal of hospital wastes throughout the health care industry. As a result, a number of initiatives were implemented to address these deficiencies.

Responsibility for biomedical waste transport and disposal was given to EPA through legislative changes and a biomedical waste group was established within EPA in 1988/89.

Working with the Health Department, EPA has developed short and long term strategies to upgrade biomedical waste management to meet community expectations. Through amendments of the prescribed waste regulations, medical wastes have been incorporated in EPA's cradle to grave waste management system.

The co-operation of health professionals, local government and waste treaters has been sought in meeting their responsibilities under the amended regulations. Manuals and information bulletins, detailing technical and operational requirements, have been prepared to assist in implementing sound waste management practices.

Only one incinerator in the State meets EPA's full requirements for biomedical waste disposal. Upgrading and provision of significant new incinerators will take several years. In the meantime, EPA has given interim approval to hospitals with 'adequate' incinerators as well as a number of well managed tips to cover regional waste disposal needs.

These arrangements have already resulted in significantly improved disposal practices with a number of local government bodies playing an active role in this area. Existing incinerators will be phased out following the development of approved regional facilities.

A joint implementation committee, comprising EPA and Health Department representatives, has examined options and funding requirements for the provision of long-term regional incineration

facilities. These recommendations are currently being considered by Government.

Although initial priorities have been directed principally at the hospital sector as a major generator, the local clinic, pathology laboratory and general practitioner must also meet the requirements of the regulations. Media attention on these smaller generators brought the message home more effectively than EPA's information program. However, enforcement of the regulations in this area is likely to continue to be difficult.

Landfills

As a result of poor management, landfills suffer from off-site effects such as odours, smoke, windblown litter and disease as well as infection carriers such as rodents, birds, flies and other insects. Other effects include the potential for pollution of surface waters and groundwater by leachate where water is contaminated by passing through wastes in the landfill.

Many landfills continue to operate as they have in the past, particularly in rural Victoria and in the older sites. New sites are established under EPA's works approval system. Consequently, they must operate in accordance with EPA licences, in an environmentally-acceptable manner.

In many areas there is considerable community opposition to new landfills. This is motivating councils to meet EPA and other requirements in a time when the whole approach to, and technology of, landfilling is being reviewed.

Although waste generation rates are still high, there are reports of up to 20 per cent reductions in the waste stream. This is a result of recycling and other schemes introduced by councils and industry and in which EPA has participated.

Landfills SEPP

The draft landfills SEPP, released for public comment in February 1989, sets the basis for the evaluation/selection, development, operation and rehabilitation of landfills receiving municipal wastes, and places controls over certain waste types.

The draft requires training for tip operators; small vehicular traffic exclusion from some landfills; landfill gas control measures; new provisions to address a range of issues such as burning at landfills, noise, dust and bird control; and site completion and rehabilitation.

The draft landfills SEPP now formalises the landfill development and operating standards of recent years and provides a more comprehensive approach.

NREC inquiry

The Minister for Planning and Environment requested the Parliamentary Natural Resources and Environment Committee (NREC) to conduct an inquiry into municipal waste management in metropolitan Melbourne. The request was made because of the high per capita waste generation rates, a high level of community concern about municipal waste management and land-use conflicts.

In April 1989, EPA presented its submission to NREC, calling for a cradle to grave approach to municipal waste management. This should include waste minimisation activities, co-ordination of waste collection and responsibility for environmental performance.

There is a need to minimise the amount of generated waste. Improved collection and transportation of wastes is needed to reduce the temptation to dump illegally; to discourage backyard burning; to remove the need for householders to visit tips; and, to provide a flexible and affordable system which is responsive to the needs of the community.

Groundwater

While groundwater of sufficient quality and quantity is limited in Melbourne, many Victorian towns depend on it for domestic supply.

There is growing concern overseas about the number of polluting incidents affecting groundwater resources. In Victoria, degradation has occurred as a result of urban development over vulnerable groundwater bodies. The need to protect the future potential of the State's

groundwater resources as well as current beneficial uses is clear.

Work is progressing towards a draft SEPP for groundwater protection. This draft aims at establishing basic controls over potential sources of groundwater pollution. Onus will be placed on proponents of new developments to show that local groundwater bodies will not be adversely affected by proposals.

As municipal landfills are a common source of groundwater pollution, the draft will be linked to the landfills SEPP regarding protection measures.

Municipal waste minimisation

As Victoria's population and industry increases, so does the level of generated waste that requires disposal. In Melbourne alone, some 2.2 million tonnes of wastes go to landfill from homes, offices and industries. This is equivalent to 800 kilograms per year for every man, woman and child.

In 1987, EPA offered incentive grants to local government to establish and maintain convenient door to door recycling bag services.

To date, there are 83 municipalities with recycling bag schemes, 35 in the Metropolitan area and 48 in the country. This means that 68 per cent of all dwellings or 2.6 million people are now serviced by such schemes. In addition to this, a substantial proportion of the remaining population have access to other services or drop-off facilities.

At least five metropolitan municipalities, and several country municipalities, have included Plastic Soft Drink Bottles (PET) as collectable items. In the 1988/89 period, these initiatives and supporting efforts by the glass, aluminium and PET industries have yielded the following recycling results:

Item	Recycling Target	Recycle Rate/Quantity
Glass	60 per cent	51 per cent
Aluminium	60 per cent	56 per cent
PET	NA	75.5 tonne

Domestic waste paper recycling schemes have been very successful and the present recycling rate for Victoria exceeds 50 per cent, which is well above the national average. However, there are some concerns about the short-term capacity of industry to handle much higher volumes of low-grade paper.

The most important new initiative in domestic waste minimisation is the concept of mixed plastics recycling. Such schemes have been made possible by State Government grants and a new mixed plastics recycling plant established by Smorgon Industries in Footscray where the material is used to produce substitute items for wood, concrete and some steel products. This is a significant addition to the plastics recycling activities of other companies such as Linacre Plastics, Plastic Technology and Royal Plastics.

In May 1989, the City of Brunswick received a \$110 000 grant to develop and promote a multi-material door to door recycling scheme, including the collection of all household waste plastics.

The project involves several modes of collection, shredding and transportation of these mixed plastics plus considerable efforts to develop high levels of community participation, including multi-lingual publications and community education programs. Further grants are expected to be announced in the next financial year.

Office wastes have also been addressed, with EPA having developed an office paper recycling scheme in conjunction with Australian Paper Manufacturers (APM). This scheme is likely to be used as a model approach for Government and commercial premises throughout the State.

A number of councils are also providing leadership with minimisation activities including the recycling of concrete, steel, lead and cadmium batteries, and oil. All of these activities are strongly supported by EPA.

Litter

The problem of litter is one that still confronts us in our cities and towns, along roadsides, waterways and in recreational areas. Through legislation,



Minister for Planning and Environment Tom Roper launching the Brunswick multi-material recycling scheme. During the year two mixed plastics recycling depots were funded at Brunswick and Nunawading.

public education and research, EPA continues to provide support to municipal councils tackling health, safety and environmental issues.

Enforcement must continue to be an important tool in litter control for those careless, unthinking members of our community who spoil the environment.

The revised Litter Act of 1987 continues to provide strong legislative support. The number of litter infringements is steadily increasing with more than 475 notices served by EPA, council officers and the public over the last financial year. Several outstanding offenders are about to be prosecuted in court.

Some councils have employed additional litter enforcement officers and several other councils have passed or are investigating special by-laws to increase their enforcement powers.

Public education is another key element in litter prevention. Two newly developed education resources draw attention to the causes and effects of littering and reinforce positive messages about a clean and healthy environment. EPA resources on litter and recycling are distributed free to all Victorian schools.

EPA also conducts annual campaigns, notably during summer and Moomba. A feature of this year's campaign, launched by the Minister in March, was two tram advertisements. These drew attention to two of the most common litter offences: general littering and littering from motor vehicles, as well as the \$100 on the spot fine which these incur.

A hot air balloon featuring the 'Do the Right Thing' logo was flown over Alexandra Gardens during Moomba. EPA's 'Talking Litter Bin' participates in all campaigns and continues to be a draw card, especially with children.

EPA supports community and council-based clean-up efforts through its annual \$200 000 sponsorship of the Keep Australia Beautiful Council and the Tidy Towns project. A number of councils and community groups have received funding or support materials for special projects, including Horsham City Council's clean-up of major highways intersecting the city.

Research is the final aspect of litter control. A pilot study on litter in urban waterways was conducted on the Merri Creek in 1988. The study investigated the types and sources of litter entering this typical suburban Creek as well as various methods to contain the litter problem. Sixty-six per cent of litter trapped in the Merri Creek was plastic, and pedestrians and motorists were identified as the principal source of these items.

Noise Control

Industrial noise

During the year, the review of EPA's industrial noise SEPP was completed, and the revised Policy came into force on 1 June 1989. The Policy, originally proclaimed in 1981, protects residents from noise from industrial and commercial premises within the Melbourne metropolitan area.

Assessment procedures have been simplified and unnecessary technical detail has been removed. This Policy has also been stream-lined, allowing EPA to resolve noise complaints quickly.

Entertainment noise

The SEPP for the control of music noise from public premises came into effect on 18 July 1989. The Policy aims to ensure that noise from music from hotels, discos, nightclubs and major outdoor-concerts does not unduly impinge on residential areas.

The Policy classifies premises into two categories. Indoor venues include hotels and discos, where music is usually played on a regular basis, although the occasional function held in a local public hall is also included. No time restrictions are imposed, but different noise limits apply for different periods of the day. There are stricter limits at night so that sleep of nearby residents is not disturbed.

Outdoor venues include sports and other large outdoor areas that are used for open-air concerts. No more than six concerts can be held per year, concerts must end by 11.00 p.m. and noise is limited to 65 decibels.

Traffic noise SEPP

There has been increasing concern in the community over the level of noise being generated on our roads. Victoria has experienced a steady increase in the volume of road traffic and with it, a decline in the amenity of those people living close to busy roads.

New road developments such as the recently opened South Eastern Arterial can transfer or concentrate noise problems so that adjacent residences can experience a significant increase in traffic noise. This occurs even where noise barriers are used and it appears that the level of noise increase rather than the absolute level is the major problem.

EPA is in the final stages of preparing a discussion paper which is expected to be released for public comment in the next financial year.

Mining

A Green Paper on the review of the Mines Act came before EPA during the year. EPA responsibilities under the Environment Protection Act allows it to deal only with pollutants crossing the boundary of the property.

EPA believes that mining should be treated as any other land use. Applications should be handled in the same way, with government mining specialists providing expertise to town planning authorities and panels in the same way as EPA staff provide environmental expertise.

EPA welcomes the forthcoming cessation of educator dredging foreshadowed in the Green Paper as a result of Government policy announced during the last election.

Motor Vehicles

In-service testing of motor vehicles is conducted throughout the State, at roadside checks with the Victoria Police, at used car dealers and through a network of approved noise testers. EPA operates a comprehensive enforcement program to control noise and gaseous emissions from in-service motor vehicles.

Vehicle Testing Station

EPA's Vehicle Testing Station, located in Queen Street Altona, is equipped to test vehicle air and noise emissions for compliance with statutory requirements.

Testing is conducted on both new and in-service vehicles. This provides a vital check on the emission compliance of vehicles supplied to the market. This is an essential part of managing air and noise pollution in Victoria.

In-service drive cycle testing is conducted using vehicles from the government fleet. This testing evaluates durability testing of emission control devices.

Another area of activity within the Station is evaluating imported or privately built vehicles. This is generally as a result of referrals from the Road Traffic Authority (RTA), now part of the Roads Corporation, to confirm the evaluation of automotive engineers.

Police and RTA liaison

Many of EPA's responsibilities for control of motor vehicles run parallel to RTA and the Victoria Police. Regular joint operations are conducted with the Police at roadside checks. These may be part of random breath tests, roadworthy checks or control of illegal street racing.

During the year EPA and RTA conducted vehicle testing during night blitzes in Carlton, as well as being a part of the road safety campaign at Shepparton.



EPA tests a variety of in-service vehicles for noise and emissions at its Vehicle Testing Station in Altona. EPA tester Lionel Hart is at the controls.

Smoky vehicle campaign

As part of this year's Clear Air Campaign members of the public were asked to report smoky vehicles during April and May. Over 3000 owners of these vehicles were sent an information sheet outlining the legal requirements for smoky vehicles.

Victorian Automotive Chamber of Commerce (VACC) liaison

EPA continues to liaise with VACC as the motor vehicle repair and retail industry representative. This resulted in a number of technical talks being arranged throughout the State, aimed at vehicle repairers, retailers and dealerships.

Advisory Committee on Vehicle Emissions and Noise (ACVEN)

ACVEN is a national advisory body established by, and reporting to, the Australian Environment Council and the Australian Transport Advisory Council.

EPA has taken an active role in supporting and contributing to ACVEN's work because of the importance of motor vehicle air and noise emission control to environmental management.

In the past year, ACVEN successfully completed work on a new Australian Design Rule which has been adopted to reduce new vehicle noise from cars, trucks and buses from the early 1990s.

Australian Government liaison

EPA believes that motor vehicle emission controls should, as far as is practicable, be approached on a national basis.

A recent important development has been the enactment of the *Motor Vehicle Standards Act* 1989. This provides the Australian Government with the power to set new vehicle standards, encompassing safety, environment and security issues.

EPA is concerned that this Act, which has considerable implications for motor vehicle air and noise emission control, was developed and enacted with relatively little consultation. However, EPA is liaising with the Federal Government to develop new emission standards and certain aspects of the Act that will strengthen enforcement of emission requirements.

Infringement notices and prosecutions

Legislation exists to ensure emission control equipment fitted by vehicle manufacturers remains in operation for the life of the vehicle. Vehicles must also meet relevant noise and smoke requirements.

Where major breaches against the Act are detected, a prosecution may be taken before the Magistrates Court. Where the offence is minor or routine, an on the spot fine infringement may be issued. See appendices for total number of infringement notices served during the financial year.

MELBOURNE AND ENVIRONS

The Melbourne metropolitan area is subject to similar environmental pressures as other large cities that rely on motor vehicles for transport and have a broad-based manufacturing sector. Urbanisation requires significant drainage works to control run-off. It poses noise and air pollution problems from motor vehicles and industry, as well as requiring the disposal of sewage, industrial and municipal wastes, to which we all contribute in some way.

While the control of existing industrial activity continues to receive a high priority, EPA deals with many issues resulting from past land-use practices.

During the year, EPA acted on a wide variety of contaminated site clean-ups. In most cases, the occupier or person causing the problem is responsible for the cost of clean-up. Where a problem arises through a long history of changing land-use and industrial practices, there may be no identifiable offender and the Government must bear the cost of rehabilitation.

EPA is considering expanding the polluter pays approach by requiring additional classes of industry to provide substantial long-term financial assurances. These are intended to be used to cover the cost of clean-ups should contamination occur.

As we become more aware of the pressures on our environment, it becomes increasingly important that appropriate planning occurs. The proximity of industry, urban development and environmentally-sensitive areas to one another requires careful consideration to avoid environmental problems.

Environmental quality objectives and pollution control strategies designed to achieve these are set out in various State Environment Protection Policies (SEPPs).

The motor vehicle emission control strategy is uniform throughout the State. However, the range of industries and other urban activities that require attention is vast. Individual consideration is needed to control pollution so that the overall environmental objectives are achieved.

Industrial activities are controlled by a variety of statutory requirements including regulations, works approvals, licences, pollution abatement and noise control notices, work notifications and clean-up notices (see appendices for a summary of statistics).

Preparation of legal briefs against industry is at a similar level to last financial year. However, infringement notices are being used more widely in our enforcement effort, generally for non-compliance with regulations, licences and notices. This overall increasing trend in prosecution actions is shown in *Appendix F*.



Emergency Response

Accidents, chemical spills or fires, particularly those involving dangerous goods, can have a profound effect on the community and the environment. EPA's role in emergency response incidents is to assess the environmental impact and determine practical measures to protect the environment. This includes advising the Fire Service of the environmental impact of hazardous substances, and ensuring that appropriate disposal methods for debris and residues are used.

EPA's emergency response unit is 'on call' 24 hours a day, every day of the year to provide specialist advice when contacted by emergency services personnel. In the past year, EPA attended 86 incidents (see Appendix Q). Other minor situations were also dealt with by EPA field staff, particularly in country regions where remoteness means that local emergency services can be quicker to a scene and take action under EPA guidance.

Most emergencies are caused by transport accidents where chemical loads are lost and spill to roadside drains. Spills of chemicals at factories and a small number of fires accounted for the remainder. A common perception is that all chemical incidents are 'toxic hazards'. In actual fact, only two out of 86 incidents involved spillage of toxic industrial waste.

East Metropolitan

Dandenong area

EPA has increased its presence and responsiveness in the Dandenong area and this will be further enhanced when the move to new, more accessible accommodation on the Princes Highway is completed later this year.

A major focus of EPA's activities has been the Dandenong Offensive Industries Zone.

This is an important metropolitan resource that is currently not fully developed. Adjoining land includes rural, residential, light industrial and general farming. Dandenong Council is co-ordinating a project, funded by the Ministry for Planning and Environment (MPE) which commenced in May 1989, to review the planning controls for the zone.

Currently a number of premises within the zone must improve their environmental performance. EPA has begun a program to systematically audit premises to identify and correct any deficiencies that could cause problems.

Worth Environmental Pty Ltd in Ordish Road Dandenong (formerly Wannop Chemicals), has been a source of many complaints. The company operates a waste solvent distillation plant and incinerator. Although a number of problems continued after the ownership change, the company's licence has been thoroughly reviewed and is being rigorously enforced. The new company has given a strong commitment to upgrade its operation. A significant improvement in performance is already apparent.

Similarly, Anzol (Victoria) Pty Ltd, a resin manufacturer in Dandenong, which has been the source of many odour complaints has been required to meet more stringent requirements under the terms of a revised licence.

Community liaison over Offensive Industries Zone

Since the major problems from the zone relate to its impact on residential areas, EPA has proposed the formation of a liaison group between industry, residents and the Dandenong Council. This will provide a forum to directly address problems and issues in the area. EPA will contribute through its pollution control expertise as well as involving its recently appointed Community Liaison Officer.

Regular surveillance

Because of the high level of public concern and complaints in the area, response time has been improved by regular after hours surveillance to ensure compliance with environmental requirements. Fifteen infringement notices were issued to companies in the area and four prosecutions are pending.

Mordialloc Creek

In April this year, considerable media attention was focused on allegations of serious pollution in a drain feeding into Mordialloc Creek.

Combined action by EPA, the Dandenong Valley Authority (DVA) and the Board of Works isolated the material in the catch drain system and ensured that there was in fact no discharge to the Mordialloc Creek. The material was safely and promptly disposed of to sewer.

Historical practices and discharges in this badly drained area had resulted in a build-up of decaying organic material which became anaerobic, causing strong odour.

This incident further highlighted the unsatisfactory nature of the drainage system in the Ordish Road area. Consequently, DVA has made interim improvements and is designing an upgraded drain. EPA's regular site audit program will prevent polluted stormwater entering the drainage system.

Dandenong Creek

The Dandenong - Springvale Water Board's sewage treatment plant is a significant odour source and has been responsible for a number of complaints in the Dandenong area. An



EPA Community Liaison Officer Toni Meek works with a wide variety of local groups on environmental issues. The community liaison role enables EPA to work more closely with local communities to gain a shared understanding of problems and issues and to work towards resolving differences.

overloaded sludge lagoon has been identified as one of several odour sources at the plant.

A works approval for a new lagoon was issued in April 1989 which required the provision of additional aerators during peak loads. A draft licence, issued with the works approval, requires cessation of the discharge to Dandenong Creek by 1 January 1995 in line with the Waters of the Dandenong Valley SEPP.

EPA is continuing to negotiate with the Board to remove the remaining odour sources from the treatment plant. EPA is placing a high priority on this and the upgrading of the plant.

Contaminated sites

Redevelopments of several major industrial sites have been halted due to the need to satisfactorily deal with accrued on-site contamination.

Such pollution of industrial sites may seriously delay and inhibit future development. Clean-up operations are costly and often difficult to implement.

Bayside Project

The Bayside Project site in Port Melbourne is contaminated with a range of petroleum hydrocarbons, and to a lesser extent with lead, phenol and pesticides from past industrial practices and accidental spillages.

To protect Port Phillip Bay from oil pollution and to allow the site to be redeveloped for residential and commercial use, oil and contaminated material must be removed.

Oily soil will be excavated and treated at a land farm to allow the oil to be broken down through natural biological processes. Contaminated groundwater will be centrifuged to remove oil and particles. Where practical, the oil will be recovered, and the remaining soil will be taken to land farm for biodegradation.

Excavations will be backfilled with clean fill. It is anticipated that restoration of the site will be completed in late 1990.

EPA drew on overseas experience, expert consultancy groups and public comment in

developing the clean-up standards. Close liaison was established and will be maintained with Port Melbourne Council and the trade union movement to ensure environmental objectives are met and to achieve close liaison on related occupational health and safety matters.

ICI Merrindale

ICI, under EPA's supervision, has removed 1500 drums of pesticide-contaminated soil from its former Merrindale research station in Croydon. This material has been classified into categories based on waste levels and EPA has begun a process of assessment of material for disposal. Approximately 30 per cent of the drums are highly contaminated and will require high temperature incineration.

After removal of the contaminated soil, the land was sold for development. EPA is assisting the Shire of Croydon to develop a subdivision plan to minimise the environmental impact of future industrial development on adjoining residential land.

Knoxfield

In June 1987, the Department of Agriculture and Rural Affairs (DARA) sold 43 hectares of land to the Urban Land Authority (ULA) which had previously been used by the Horticultural Research Institute. ULA was notified by DARA in October 1988 that several years earlier, unused agricultural chemicals had been buried on the site.

EPA was informed and subsequently developed a strategy to remove and dispose of the contaminated soil. The excavation of two pits revealed elevated levels of organochlorine residues. Soil containing low level residues were disposed of at an approved landfill site while more heavily contaminated soil was required to be removed in sealed drums for disposal by high temperature incineration.

Former gasworks sites

Tar residues found at former gasworks sites in South Melbourne and Brighton have inhibited the redevelopment of these sites. EPA is liaising with the Gas & Fuel Corporation, which has responsibility for the clean-up of the sites, to

ensure that the nature and extent of the contamination is fully examined and appropriate remedial action taken.

Landfills

The extraction of sand in Melbourne's south east has created large pits which have subsequently been used for landfill operations. The environmental consequences of allowing a high density of landfills in the sandbelt area has been of concern to EPA. There have been problems with odour, litter and leachate from current and past practices and EPA is maintaining close liaison with tip operators to improve performance.

EPA has received a number of works approval applications to establish further landfills in the area and will need to ensure that the groundwater is not further polluted by leachate. A consultant's report, commissioned by the South Eastern Regional Refuse Disposal Group on the effects of leachate generated from landfills on the underlying groundwater, is being considered in this context. However, it is likely that putrescible disposal in the area will have to be severely restricted in future. As a result, a comprehensive review of waste disposal in the region will be necessary.

West Metropolitan

Petrochemical and chemical industries of the western suburbs

These industries are important to the Victorian community both in terms of the products they provide and their economic implications. As they are situated near residential areas, special attention is given to assessing the environmental effects of proposed works.

A number of works approval applications were received from these industries during the 1988/89 financial year. Particular proposals were the expansion of the glyphosate plants at Chemplex; the increased furnace capacity at the Altona Petrochemical Company; and, the manufacture of a new grade of rubber at Australian Synthetic Rubber (ASR).

In assessing any applications, EPA requires that existing operations are improved and contingency measures introduced, ensuring equipment failures will not prejudice environmental quality. An example of this is the minimisation of benzene emissions at ASR.

Benzene is a carcinogen and the air SEPP requires a reduction of these emissions to the maximum extent achievable by technology. With the proposed production changes, EPA requires a reduction of benzene in line with the policy.

Contingency measures in other situations included improved venting and operating systems on various storage operations. Bunding is required around any approved plant where spillages are considered possible.

Accidents within the petrochemical and chemical industries have increased local community concern. This is in addition to the growing awareness of the potential hazards associated with chemicals and the demand for an odour-free environment.

This concern is reflected in community opposition to development proposals. To bridge the gap between industry and the community, the local Member of Parliament, Dr Coghill, established the Altona Complex Neighbourhood Consultative Group. Although the Group is in its formative stages, EPA supports this initiative and is hopeful of a more constructive process in the review of industry performance.

Petroleum Refineries (Australia) Pty Ltd (PRA)
PRA continues to be a source of problems to the local community and the environment. These problems include odour, smoke, noise, catalyst fallout as well as pipeline leaks. Prosecution proceedings have been initiated for a naptha discharge from a leaking pipeline in June 1988 and investigations are continuing into a catalyst fallout incident which occurred in March 1989.

Negotiations are continuing with PRA to overcome these and a range of other specific problems. Unfortunately, however, efforts to date have not produced substantive results and have largely

been reactions to problems that have occurred. EPA believes that residents should not be continually inconvenienced by industrial activity.

PRA agrees with EPA that a more progressive approach to environmental concerns is required. As a result, a framework for an Environment Improvement Plan to guide future action on these concerns has been formulated. This Plan is to be reviewed and further refined in discussions with local community representatives before it is formally adopted. The community, through a liaison group, will raise its concerns directly with the company; provide direct input on company proposals; and, review PRA's adherence to environmental performance.

EPA believes that this approach has the potential to provide a workable mechanism for resolving environmental conflicts between industry and local communities in the 1990s.

Waste treatment and disposal

Waste treatment and disposal continues to receive special attention in EPA's enforcement efforts.

Following odour complaints, extra after-hour checks were made at Harpers Waste Disposal Services Pty Ltd at Coburg. No conclusive assessment was made. However, in view of the complaints, EPA refused the company's proposal to establish a second incinerator on the site to handle both industrial and hospital wastes.

A works approval was issued to Trident Development Technologies for an incinerator at Laverton North to handle only biomedical wastes. The proposal incorporates state of the art technology and pollution control equipment. As a result, emission problems are not expected either near the plant or at residential areas, over two kilometres away.

The Cleanaway site at Tullamarine remains Victoria's only secure landfill for handling our industrial residues. Odours have generally decreased now that the site does not accept liquid wastes, although there are still some problems. To overcome these, final soil cover of the site has commenced and gas collection equipment has been installed over part of the site.

The Vicwaste site, operated by the Board of Works at Tullamarine, has also generally performed in a satisfactory manner. However, one incident involving the treatment of materials caused objectionable odours in the surrounding residential areas and consequently many complaints were made to EPA. An infringement notice was served on the operator in April 1989 for this breach of licence.

Australian Waste Processors at Laverton North caused one major gas release during the financial year. The cause of this poor cleaning practice has now been rectified.

Waste re-use

Cabot Australasia Pty Ltd at Altona proposes to utilise flue gases to produce electricity. This will be made available to the State Electricity Commission of Victoria (SECV) grid, while at the same time producing steam for its own use. The proposal means a reduction in carbon fallout which has been a major problem for many years. For these reasons, the proposal received general community support.

Another major re-use of waste is proposed for the Craigieburn area. The town's sewage treatment system is designed to service 10 000 people by discharging treated effluent to Merri Creek. A population increase to 20 000 people is proposed, but the Creek is not capable of accepting more effluent. Accordingly, EPA has indicated to the Bulla Council and the Board of Works that further urban growth in the town can only take place if sewage effluent is re-used and not discharged to watercourses. As a result, a proposal has been received to use the effluent to irrigate the golf course.

Rendering industry

The rendering industry has been a major source of odour in the western suburbs. Additional controls have been introduced at existing plants to overcome these problems. These controls have included a biofilter to control odours from a wastewater treatment system; a new afterburner to reduce cooking odours; and, new low temperature cooking units at various other premises. New premises require total enclosure and appropriate pollution control. This is

considered to be state of the art technology and capable of eliminating odours.

A joint industry/EPA working party was established to prepare specific requirements for odour control throughout the industry.

Planning issues

A number of major issues have implications for pollution and noise control. Foremost among these is the Plenty Corridor which has been identified as a major area for urban growth in Melbourne.

EPA studies of the Plenty River indicate that it is presently under stress biologically and unable to accept large amounts of sewage effluent. Accordingly, EPA has advised that urban growth should be based on land disposal of effluent or accelerating trunk sewer construction to convey effluent to the Werribee Sewage Farm.

Another significant planning issue is the development around the Calder Park Thunderdome. EPA has defined areas which would be noise affected and has subsequently opposed residential subdivision in these areas.

Urban creeks

Efforts continue to be made to improve the quality of urban creeks. Particular emphasis is placed on the Merri and Darebin Creeks to limit pollution sources. Successes include the elimination of dyeworks effluent originating from premises in Coburg and the control of run-off from a number of concrete batching plants.

As previously mentioned, EPA participated in a litter study of Merri Creek, undertaken by the Merri Creek Co-ordinating Committee. EPA also initiated a detailed study of water quality influences in the Merri Creek. This latter study will enable on-going improvements to water quality.

As a result of an overflow at a treatment plant operated by Southern Paper Converters Pty Ltd at Broadmeadows, large amounts of pulp entered and settled in Yuroke and Moonee Ponds Creeks. Improved contingency measures by way of bunding, drainage control and stand-by pumps have been introduced at the plant. A prosecution against the company was

unsuccessful, however, EPA is considering an appeal.

Contaminated sites

As former industrial sites are redeveloped to satisfy changing community demands, a number of contaminated sites emerge. The situation is in line with overseas experience and results from the operation and disposal practices previously adopted and considered appropriate in industry.

Current knowledge and community values mean that these practices are no longer acceptable and there remains the difficult task of identification and clean-up of the past contamination. Clean-up costs are very high and developers are ensuring they have complete information about a site before purchase. This in turn reveals the contaminated sites. There are some instances, though, where purchasers are unaware of the contamination and this can have severe repercussions in future development.

With the concentration of industrial undertakings within the western areas of Melbourne it can be expected that the number of contaminated sites will increase in this area. Sites currently known to be contaminated include the Commonwealth Explosives factory at Albion; the former gas works in West Melbourne; and, a former quarry contaminated with arsenic wastes in Yarraville.

EPA's approach is to determine the level and extent of contamination and to ensure appropriate remedial action is taken. This may consist of complete removal and treatment of the material or appropriate isolation on-site, depending on the assessed effects.

Emergencies

Whilst contingency measures are applied to new plant, existing operations continue to fail at a frequency which is cause for concern.

Most notable amongst of these was the failure at BF Goodrich, where approximately 11 tonnes of vinyl chloride monomer (VCM), a carcinogen, escaped following a power failure. Other problems experienced were excessive flaring at Altona Petrochemical Company, a fire at

Australian Synthetic Rubber and a gas release at ICI in Deer Park.

In all these cases, a combination of remedial action and legal measures, as appropriate, were taken. In the case of the VCM release, EPA is overseeing the introduction of a dual backup system so that the likelihood of a similar event is remote.

Emergencies can also occur during transport and loading operations where environmentally-hazardous materials are involved. One example of this was the unloading of toxic toluene diisocyanate (TDI) in a street in Thornbury. The material flowed down the drainage system and into Darebin Creek, exposing a wider community to the problem.

In this case, the transport company, AR Neal Transport Pty Ltd, was required by notice to conduct all future unloading/loading operations within a bunded area. Unfortunately, the practice of loading in streets is common in Melbourne's older industrial areas and the potential problem from this source will take years to overcome.

The major emergency during the year was the chemical fire at United Transport Services (UTS) premises in Footscray Road, Kensington. Over 3000 tonnes of chemicals, including plastics, and smaller volumes of hazardous material such as flammable liquids, herbicides and wood preservatives were involved.

The major environmental success in this unfortunate situation was that very little toxic firefighting water entered the Marjbyrnong River and that the difficult task of clean-up proceeded in a professional and efficient manner. Residues were treated and disposed of at premises licensed to take such wastes.

Public concern was expressed at the lack of specific EPA air monitoring at the time of the incident. This was exacerbated by communication problems. Whilst the lack of immediate monitoring was not regarded as critical in the case of UTS fire, in future EPA will attempt to supplement professional decision-making with monitoring.



The scene after the November fire at the United Transport Service Depot in Footscray. Extensive clean up operations were required and EPA's investigations into the cause of the fire are still continuing.

RURAL VICTORIA

Overview

With 30 per cent of the State's population located outside the Greater Melbourne area, there are also some significant environmental issues to be addressed in rural Victoria.

Activities which continue to cause environmental problems are mining operations; erosion from land disturbance activities; waste disposal at alpine resorts; expansion of beef cattle feedlots and piggeries; disposal of domestic garbage and industrial wastes; and, the management of wastes from food processors.

A major cause for concern is discharging sewage to the ocean with minimal treatment, particularly where it affects coastal communities, the expanding surfing industry, fishermen and beach users. Some of these discharges need upgrading to comply with all the requirements of the Waters of Victoria SEPP. Assessment of the extent of additional treatment needed for these to meet policy requirements has begun.

A growing issue in country Victoria is noise from recreational activities and industry. EPA has developed guidelines for the control of noise in rural areas. These guidelines will be valuable for the Administrative Appeals Tribunal (AAT) when ruling on objections to developments and for planning authorities when considering amendments to planning schemes and applications for planning permits.

Motor sports are becoming increasingly popular in country areas. The development of new speedways and racetracks, and increased use of existing facilities, has raised a number of environmental concerns. Noise is the major concern as well as problems of dust, traffic and disturbance due to ancillary uses of the racetrack.

Through the Australian Environment Council (AEC), EPA has been active in developing a national policy to control noise from motor sports. This will be valuable as it will ultimately result in uniform and effective controls throughout Australia.

Motor racing will always have an impact on the surrounding acoustic environment. However,

controls on operating times, effective muffling of race vehicles and proper acoustic treatment of the tracks can minimise the impact on the community.

New racetrack proposals are subject to works notification. Before construction, EPA can assess the noise impact and set appropriate conditions in the planning permit through the referral provisions of the *Planning and Environment Act 1987*.

Noise from mining, ore processing and the disposal of mine water remain major issues. Other problems include dust, odour, traffic, the safe use of chemicals and mining leases. Mining developments often occur in rural areas where background sound levels are very low. There is an inevitable change in the acoustic climate when a mine and treatment plant are established. When such operations are located in quiet areas, they will have some detrimental effect on nearby residents.

Off-site discharges require works approvals and licensing. In addition, proponents of mining developments are required to submit a works notification, allowing EPA to assess the noise impact from the site. Specific problems are addressed by pollution abatement and noise control notices.

Another activity under close scrutiny is the performance of sewage treatment facilities at alpine ski resorts and their compliance with the Waters of Victoria SEPP. EPA has already placed interim requirements on resorts at Mt Hotham and Dinner Plain. A strategy to bring these facilities in line with policy requirements is being developed.

The potential for waste minimisation in rural Victoria is yet to be realised. Close attention will be paid to those industries with the potential for significant savings to encourage a more enterprising attitude towards waste reduction and utilisation.



South West Region

The heavy industrial areas in the south west region are located in Geelong, and to a lesser extent Portland and Ballarat. There is concern in these areas regarding industry's impact on air quality and the potential long-term effects on community health.

Air quality

Over recent years, EPA's air monitoring has concentrated on Melbourne and the Latrobe Valley because of their particular problems. It is now planned to locate EPA monitoring stations in the Geelong region during 1989/90. This is part of an overall assessment of air emissions, meteorology and air quality and will be supplemented by stations operated by Shell and Alcoa, as required by their EPA licences.

Information obtained by this airshed study will be useful for more detailed computer modelling and assessment of the impacts of future industrial and urban developments on air quality in the region.

The monitoring will include continuous measurements of meteorological parameters, sulphur dioxide, oxides of nitrogen, ozone, hydrocarbons as well as visibility-reducing particles.

Aluminium smelting

EPA is currently assessing the performance of the Point Henry Smelter in relation to a major overhaul of its anode bake furnace. Overall plant emissions and the incorporation of best available control technology will be a feature of EPA's requirements.

After problems with the anode bake scrubbing system at the Portland Smelter in mid 1988 and for a 17-hour period in late 1988, the system has performed to design standards. EPA conducted monitoring and audits of the various monitoring programs during the year as required by the licence. Overall plant emissions remained within licence limits although individual sources exceeded their limits on occasions.

Recent reports on the marine ecology in the area showed there has been no deterioration to marine life since the Smelter began operating. These surveys are required to be conducted annually.

An extensive vegetation monitoring program is conducted on a monthly basis with annual surveys of the heathland area. As expected, fluoride levels in vegetation are higher than background levels within the smelter buffer zone. This could well contribute to the damage observed on the foliage of some plant species. However, levels outside the buffer zone remain at background levels.

The company is currently undertaking a study of local meteorology, as required by its licence, to further investigate local air quality in relation to fluoride and sulphur dioxide. Concerns have been raised, particularly by fishermen, about effects experienced at certain times off-shore from the smelter. This study is expected to be completed by early summer.

Shell Refinery

Shell Refinery at Corio is proposing to replace its existing catalytic cracking unit with a larger capacity, more flexible unit to process higher sulphur bearing crude oils. These crudes will gradually replace the low sulphur crudes from the Bass Strait oil fields as supplies run out.

The new unit, together with consequent changes in other processes allows the Refinery to continue to run at existing or at a slightly increased capacity without exceeding the air SEPP limits for sulphur dioxide and oxides of nitrogen. Pollution control equipment will account for more than 10 per cent of the total project cost of approximately five hundred million dollars.

The South West regional office is assessing an application for a works approval for the new unit.

Geelong ocean outfall

The Black Rock sewage outfall facility, commissioned in March 1989, caters for Geelong's population and industry. The facility incorporates a fine screening plant and submarine pipeline discharging sewerage effluent one kilometre out into Bass Strait.

The water quality at beaches in the area has improved markedly since commissioning, but it still does not comply with the Waters of Victoria SEPP.

Following a review of the new plant, the Minister for Planning and Environment announced the need for additional work to upgrade the system. This work is being conducted by EPA, the Department of Water Resources and the Geelong and District Water Board.

Two other EPA initiatives are also underway. The Board's licence is being amended to achieve compliance. A monitoring committee, representing the local community and beach-users, is being established to assist in evaluating the results of the monitoring program which is required by the EPA licence.

A vegetation monitoring program, building on one that was carried out in 1988, will be implemented to better assess the impact of surfactants.

Mining

EPA has issued a works approval to Ballarat Goldfields for its wastewater treatment and aeration plant. The company is required to comply with the requirements of the Waters of Victoria SEPP, for the mine water discharges, and the air SEPP for the discharge of hydrogen sulphur from the aeration section of the treatment plant.

EPA has also served a noise control notice on the company requiring it to meet permissible noise levels for the construction and operating phases of the project.

Domestic wastewater disposal

Domestic wastewater disposal issues in the region essentially fall into two categories: those at developing tourist resorts without reticulated sewerage schemes or those where the sewerage system is overloaded and needs augmentation.

The first category usually results when small holiday resorts relying on septic tanks for sewage disposal become popular tourist attractions. Septic tanks become overloaded and discharge to local drains.

In these cases, EPA encourages and advises local councils and water boards to implement sewerage schemes. EPA makes submissions to

the Administrative Appeals Tribunal in support of such advice.

Treated effluent from overloaded reticulated sewerage schemes does not usually meet the requirements of Waters of Victoria SEPP. Consequently augmentation is required by EPA licence amendments. Nutrient removal may be necessary, depending on the quality of the receiving waters.

In the past year, five proposals have been assessed and works approvals issued for new plants or modifications to existing ones to achieve the required improved effluent quality. Many smaller treatment plants attached to motels and caravan parks have been reviewed to determine their adequacy.

Municipal waste disposal

Problems with municipal waste disposal are common to all EPA regions. In country areas, the problems may arise from the lack of acceptable tip sites, the inappropriate location of existing tips or from poorly operated and often unmanned sites.

EPA continues to encourage municipalities to tackle their problems on a regional basis by forming regional waste management committees. To date, groups have been established at Colac, Ballarat and Geelong.

Apart from the proposed closure of unsuitable sites, in particular Lake Bolac and Snake Valley Tips, emphasis is placed on encouraging councils to up-grade tip operations and establish transfer stations.

Disposal of liquid wastes

Disposal of most types of liquid wastes, particularly grease trap and service station car wash wastes, has historically been to land, more recently the Sebastopol tip. This practice was exacerbating a leachate problem at the tip.

EPA now requires that all effluents and sludges contaminated by chemicals be disposed of at EPA approved facilities in Melbourne. EPA has issued an approval for the acceptance of grease trap wastes at Sebastopol until mid-September

1989. EPA is working with the Ballarat regional tipping working party on likely alternatives.

Mariculture (fish farms)

The State Government's efforts to encourage proposals to meet fish export demands has resulted in two major schemes for the region. A salmon/trout farm has been approved near Port Fairy, while a proposal to raise barramundi in geothermally-heated water at Portland is at the pilot evaluation stage. An application for a works approval is expected in late 1989.

Mariculture projects have been centred on these areas because of the abundance of uncontaminated seawater. To protect the local environment, EPA will require that used seawater will be returned to the ocean in a condition similar to that when it entered the process.

Northern Region

Environmental problems as a result of gold mining, intensive animal industries, tanneries, food processing plants, sewage disposal and emergency incidents involving chemicals continue to cause concern in the Northern region. Motor sports are growing in popularity, resulting in increased complaints about noise, dust and extra traffic.

Intensive animal industries

Two major extensions to existing feedlots are proposed for the region. A works approval was issued to Charlton Feedlots Pty Ltd on 5 May 1989, allowing for an additional 5000 cattle. The feedlot operation minimises odours by spreading aged manure on a company farm at Serpentine and supplying it to citrus fruit growers in the Mildura/Sunraysia area. The proposal satisfies EPA guidelines for buffer distances between feedlots and residential areas.

A works approval to house 12 000 additional cattle at the ICM Farm Products Feedlot at Peechelba was issued on 23 June 1989 along with approval for an abattoir/rendering plant complex on the same site. The abattoir will have a capacity of 400 cattle/day and a total of 28 000 cattle.

To minimise odour problems, the disposal of manure from the additional cattle will not be permitted on the existing site and proposed new sites will be reviewed with the Shire. EPA will require the company to undertake strict waste disposal monitoring, including odour and groundwater analysis.

Tanneries

Tanneries produce wastewater of high organic content with the potential for obnoxious odours. Salinity and the presence of chromium in some tannery wastewaters are other potential problems.

Zaddor Pty Ltd

Odours from a sheepskin tannery, Zaddor Pty Ltd in Benalla, were found to originate from shallow settlement ponds used to improve wastewater quality before discharging to sewer. Agreement was reached with the company, Benalla City Council and the Benalla Water Board to upgrade the treatment plant and relax the sewer acceptance limits, thus avoiding the need for the ponds.

Sewage disposal

The City of Wodonga has had sewage treatment problems for some time. It is now serviced by two treatment plants. The newest plant, at West Wodonga, was commissioned in 1986 and comprises an oxidation ditch and maturation pond system which discharges to the Murray River.

The EPA licence required a reduction in the phosphorus level by 1 January 1989 and a maximum ammonia and nitrogen level of 5 mg/L.

These were necessary to protect the River from excess nutrients. The additional works to meet these requirements were commissioned on time and monitoring indicates that the plant is performing satisfactorily.

Wimmera River water quality improvement

The treated wastewater discharge to the Wimmera River from the City of Horsham sewerage plant ceased in May 1988 in accordance with the Wimmera River SEPP and licence conditions.

Monitoring of the Wimmera River before and after removal of the discharge shows a 94 per cent reduction in total phosphorus concentrations.

The discharge from the plant is now piped to a storage dam on the Department of Agriculture and Rural Affairs Crop Research Station for irrigational purposes. Very high crop yields have already been demonstrated in the first year of re-use of the water.

Wodonga odours

In the past 12 months, significant progress has been made in reducing obnoxious odours from the residential areas of Wodonga following implementation of action plans developed in conjunction with EPA. Uncle Ben's of Australia commissioned the first bio-filter odour control unit in Victoria to remove odour from its wastewater treatment unit. The company is also reducing the source of organic wastes entering the wastewater, and minimising odour generation potential.

Recladding of Associated Meat Processors to achieve total collection and elevated dispersion is well advanced. A 30-metre high stack to disperse plant odours should be installed by December 1989.

The company has also upgraded its wastewater treatment system to reduce the oxygen demand of the discharge to sewer, which will further alleviate odour problems.

Mining

New gold mining proposals decreased during the year as a result of the fall in gold prices. Considerable staff time was devoted to commenting on Environmental Effects Statements (EES) for Western Mining at Bendigo; Bendigo Mining Central Deborah at Bendigo; Bendigo Gold at Fosterville; and, Perseverance at Nagambie.

A licence was issued to Bendigo Mining Central Deborah for a limited-volume discharge of mine water to Bendigo Creek to ensure that toxic concentrations of salt and arsenic are avoided. When a processing plant is constructed, evaporative ponds have been proposed to contain the mine waters.

A discharge of cyanide resulting in a fish kill occurred from the A1 Mine into Gaffneys Creek on Christmas Eve. The erosion of packing sand, caused by surface run-off beneath the dam plastic liner, led to failure of the lining. EPA has initiated a prosecution against the mine owners for water pollution.

Biocide residues

Ovens and King River systems

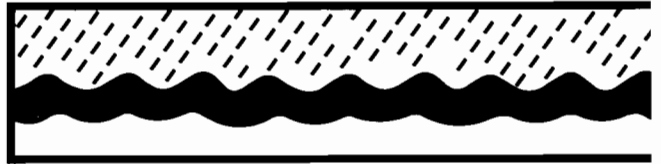
A large part of the tobacco crop produced in the Myrtleford region is grown on the flood plains of the Ovens, Buffalo, Buckland, King, and Kiewa Rivers. Tobacco is a summer crop which requires the extensive use of herbicides, fungicides, nematocides, and insecticides for its successful production.

In the past, large quantities of organochlorine insecticides, particularly DDT, were used for pest control. Nowadays, synthetic pyrethroids are used. While they are much less persistent than DDT, some are even more toxic to aquatic organisms. EPA recognises that biocides can damage the environment and this, plus community input and concern, has assisted in the design of a study on the impact of their use in the region.

Water and sediment samples were collected from seven sites and analysed for pesticide and fungicide residues. These sites included four on the Ovens River, two on the King River and one on Boggy Creek.

In addition, chironomid samples were taken at six other sites and examined for morphological abnormalities. Samples were collected during normal and storm event river flows. However, because of above average rainfall throughout spring and summer, normal river flows were also well above average.

At this stage, only the analyses of the water and sediment samples have been completed. Under normal flows the analyses showed biocide concentrations either below detectable levels, or, if they were detected, well below EPA and the World Health Organisation (WHO) drinking water guidelines. However, levels were generally



above threshold levels set by EPA for adverse environmental impact.

By contrast, the one storm event sampled gave organochlorine residues above the WHO guidelines, and in one case above EPA guidelines as well. Also during this event DDT and its breakdown products, DDD and DDE, were measured at levels above both EPA and WHO guidelines, indicating recent usage of DDT. In addition, both aldrin and dieldrin were detected at levels above WHO guidelines.

Further work has been planned for 1989/90, and this study is expected to continue for some years.

Horsham area

During the 1988 spring, a study was conducted in the Horsham area to determine the impact of biocide residues on the water environment. The residues are a result of spraying legume crops with organochlorine, organophosphate, and pyrethroid biocides to control pea weevil and native budworm.

The study was prompted by concern over fish and yabbie kills in the region during previous spraying seasons. Over-spraying and run-off from sprayed areas were thought to be likely factors in the kills.

Water and sediment samples were collected from farm dams, wetlands, and irrigation channels near the crop growing sites before and during the spraying period, and analysed for biocide residues.

Analyses showed that dieldrin was already present in some local water bodies before the spraying began. During spraying, other organochlorine and organophosphate residues were found at most sampling sites. Residue concentrations often exceeded EPA's threshold values for adverse impact on the environment. Of concern was the evidence of DDT residues at two sites, indicating recent spraying with the banned chemical DDT.

The study was affected by wetter than usual weather during the spraying period resulting in local flooding and reduced aerial spraying.

Publicity in the local media is thought to have reduced the incidence of over-spraying. Follow-up work will be undertaken during the spring of 1989.

Gippsland Region

This region generates most of Victoria's electricity and is a major producer of paper pulp. Major issues relate to odour problems and water pollution from industrial processes, wastewater disposal, farming and forestry operations.

Progress in eliminating or reducing pollution in Gippsland has been achieved by relocating offending industries; replacing existing pollution control equipment; installing new control equipment; close attention to land-use proposals; upgrading of sewage works and municipal tips; and, increased enforcement.

Ocean outfalls

The Leongatha outfall was constructed in 1967 to convey milk and abattoir wastes together with some domestic sewage to Bass Strait. Frequent pipeline breaks have occurred during the year. However, due to quick responses by the Leongatha Water Board none of these resulted in water pollution.

The outfall licence has been amended and requires the removal of all domestic waste from the pipeline. These wastes will be conveyed to the municipal wastewater treatment plant prior to July 1990. EPA will require the Water Board to examine future options for the treatment and disposal of industrial wastewater from Leongatha and Korumburra. The Water Board must submit an options report to EPA before July 1990.

Latrobe Valley ocean outfall sewer

During the year EPA's attention was focussed on developing a variety of monitoring programs to be undertaken to ensure that the performance of the biological treatment and ocean outfall system does not adversely affect the marine ecosystem. These programs were developed in conjunction with marine biologists and statisticians, including the scientific consultant to the Lakes Entrance Fishermen's Co-operative. The program has since been refined with the aid of

the environmental monitoring review committee which has drawn together representatives of the Marine Science Laboratories, the Conservation Council of Victoria, other interest groups, scientific advisers to the Lakes Entrance Fishermen's Co-operative, the EPA staff with expertise in the areas of effluent treatment, aquatic chemistry, toxicology and marine biology. The monitoring committee has examined both the issues raised early in the assessment process and more recently from Scandinavia and North America concerning the impact of pulp mill effluents on the aquatic environment.

Some aspects of the program are already well underway in order to establish the baseline situation regarding the levels of organics and metals in biota and sediments, and a baseline description of subtidal and intertidal communities. Post-discharge monitoring will continue these programs and include chemical and toxicity characterisation of the wastewater, monitoring for accumulation of organics and metals in sediments and selected biota, and fish tainting tests.

Community concern has grown about the potential effects of organochlorines in the waste discharge due to effects of organochlorines as observed overseas, particularly Sweden. Although the level of organochlorines in the discharge is approximately one-tenth of that proposed for Swedish pulp mill effluents in 1992 this concern still remains.

As a result of these concerns, the Government has decided to appoint a three-member panel to receive submissions from the public and review the overall ocean outfall proposal. The proposal will be held in abeyance, pending recommendations from the panel.

APM

The APM pulp and paper mill at Maryvale has for many years generated electricity with boilers fired on brown coal. These boilers were old moving-grate units with cyclone-type dust collectors to control stack emissions. Emission quality was not satisfactory and, along with high maintenance costs, resulted in the company deciding to replace the coal-fired boilers

with a new gas-fired unit. A new boiler was commissioned early in 1989 and the old ones are no longer in use. This had led to a dramatic improvement in the quality of emissions from the power plant.

Odour emissions from the Maryvale mill has been a long-standing problem. Gradual improvements over the years have generally achieved reductions in the frequency and the strength of odorous gases emitted from the mill. However, the performance remains unsatisfactory and is a continuing source of public complaint.

During the year, the company installed a new incinerator to improve the reliability in achieving destruction of odorous gases. The new incinerator replaces an older unit, and is comparable with an existing incinerator which will continue to operate. However, odour problems still persist due to a variety of reasons including problems with the commissioning of new plant.

EPA views odour as a major issue and high priority will be given to overcome the problem in the next financial year.

Mill effluent

Recent public concern over the environmental impact of organochlorine compounds in pulp mill effluents has focused much attention on APM's mill at Maryvale. The inplant treatment and the aerobic/anaerobic treatment at Dutson Downs combined with a lower chlorine requirement for eucalypts than for soft woods reduces organochlorines in the effluent below the levels produced by most mills around the world.

Wastewater from the mill is treated in a series of lagoons before being discharged to the Latrobe River. Other wastewater is discharged to the sewer.

State Electricity Commission of Victoria (SECV)

Yallourn W power station

Electrostatic precipitators (ESPs) are used at all coal-fired power stations in the Latrobe Valley to remove dust from atmospheric emissions. The ESPs on the first two boilers at Yallourn W power

station had operated since the early 1970s and had suffered deteriorating performance over the years. These have been replaced by new units, a major undertaking costing \$36 million and has resulted in greatly improved quality of emissions from the power station.

Yallourn

Following the closure of Yallourn E power station during the year, there is normally no discharge directly into the Latrobe River from any of the SECV power stations at Yallourn. With the exception of saline ashing water, all wastewaters are now discharged to the Morwell River after treatment. This has resulted in a substantial reduction in thermal loadings on the River. SECV is reviewing the need to maintain EPA licences to allow for emergency discharges from Yallourn W power station.

Morwell

A new settling pond for the treatment of stormwater from the Morwell briquette factory/power station area was commissioned during the year. The pond significantly improves the treatment available to the stormwater system prior to discharge to Bennett's Creek.

Loy Yang power station

EPA has required SECV to produce a management plan to control and improve wastewater discharges to the Traralgon Creek. EPA is concerned about the impact this discharge is having on the Creek and in the process of reviewing the licence, the Commission has completed a study into alternative methods of treatment and/or disposal.

A pollution abatement notice was issued during the year requiring the Commission to undertake various activities at Loy Yang, including toxicity monitoring of the wastewater stream. The saline wastewater outfall pipeline, which conveys ashing water from the Valley's power stations, has also been reviewed and will now include toxicity testing of the effluent prior to discharge to Bass Strait.

Proposed pulp mill

In February 1988 the Victorian Government called for expressions of interest from companies to prepare a detailed feasibility study of a potential pulp and paper mill in East Gippsland. Two companies, Australian Paper Manufacturers and North Broken Hill Holdings were selected to prepare proposals.

EPA has a central role to play in specifying environmental controls and assessing the environmental impact of the proposed development. The basic level of control is specified in SEPPs for the air and water, and the philosophy of waste minimisation.

Environmental monitoring is a crucial tool in assessing the proposal. EPA has employed a marine scientist to specifically design a comprehensive monitoring system which is designed in two parts.

A broad scale assessment of existing conditions will be carried out to determine what environmental controls are required, and to predict the impact of the mill. This work has already begun. The next phase will provide long-term monitoring of sensitive environmental components, to provide good baseline information against which to judge the performance of the mill.

Relocation of Lacey Valves

A metal foundry has been operated by Lacey Valves in the centre of Sale for many years. In recent times, complaints about fumes from the foundry were made to EPA, which served a notice requiring the company to eliminate the odour. After investigating its options, the company decided to relocate to an industrial estate at Wurruk, on the outskirts of Sale. The new premises will allow better odour control practices to be implemented.

Dairy industry

Poor management practices by various companies have resulted in the pollution of creeks in the Drouin area in past years. Following negotiations with EPA, Allowrie Foods Australia Ltd has reversed this situation by improving its waste collection, treatment and disposal system.

Offensive odours, often experienced with milk waste disposal, were not reported during the year. The waste disposal farm has now managed to ensure the protection of pasture and the external environment, with the satisfaction of pasture requirements being the controlling factor.

Bonlac

The company's disposal site at Longwarry in the Shire of Buln Buln has for years been over-irrigated with high sodium and high salt-laden wastewaters from its dairy factory. This has resulted in significant damage to the pasture.

As part of an overall upgrade of the waste management system, EPA required the company to separate its caustic wastewaters for disposal at other sites as well as requiring soils over the disposal site to be progressively rehabilitated.

Due to concerns about localised salinity, the company will only be permitted to irrigate to pasture requirements. At other times the discharge of highly treated wastewaters from the site will occur. Augmentation of the lagoon treatment system along with an upgrading and expansion of the irrigation system is proposed.

Dairy shed effluent containment

The Gippsland regional office has served 11 pollution abatement notices over the past year on farmers across the Gippsland area requiring them to contain their dairy shed wastes on their own properties. Generally, EPA experiences good co-operation with the farming community.

Shire of Korumburra

The Council-operated saleyards are among the largest in the State. Run-off of saleyard wastes can result in pollution of nearby watercourses. The Council was found guilty of four counts of water pollution and eight counts of breach of EPA licence and fined \$6000 in total. The charges related to wastewater run-off to Foster Creek from the Council's saleyard.

The Council has had a history of problems regarding waste disposal from these yards and plans to connect the total wastes to sewer in the next year.

Domestic wastewater disposal

Metung sewerage scheme

The lack of sewerage at Metung, a holiday resort town on the Gippsland lakes, causes local environmental health problems. Development in accordance with the relevant planning strategies is inhibited because of poor land capability for septic tank systems.

A sewerage scheme with treatment lagoons, followed by summer flood irrigation and irrigated tree plantations, was proposed for a location close to Lake King. Numerous objections were lodged on grounds including environmental damage, loss of amenity and cost. The proponents were required to extensively research the proposal. EPA conducted independent investigations and examined all aspects in great detail before issuing works approvals.

Several attempts were made to resolve the issues without success. Appeals were lodged against the works approvals on grounds that challenged the concept of irrigation with treated sewage. The appeals were ultimately dismissed by the Administrative Appeals Tribunal (AAT).

Stratford sewerage scheme

A history of poor quality town drainage affecting the Avon River at Stratford underlies the need for sewerage at Stratford. A works approval was issued by EPA for sewage treatment lagoons and summer flood irrigation of pasture.

Appeals were lodged on various grounds including odour, soil salinisation and loss of amenity. Conferences were held with the principal objectors to identify their concerns and explain the scheme in detail. An open public meeting clearly demonstrated overwhelming support for sewerage in the town. Further negotiations eventually resolved the outstanding issues and the appeals were withdrawn.

Both of these sewerage scheme applications demonstrated a heightened public awareness of environmental issues in Gippsland. Local



community representatives displayed a good understanding of the issues and supported the end result.

Municipal waste disposal

Within the central Gippsland region, major improvements in the area of tip management and waste disposal have been welcomed by EPA. The City of Moe decided to close its incinerator and establish a sanitary landfill. Further east, the City of Traralgon has made significant improvements to its site management.

The Shires of Buln Buln and Warragul have completed initial investigations into alternative sites to replace the one at Darnum and are working towards completing a waste management plan for their municipalities.

The incidence of tip burning has reduced dramatically in Gippsland. This can be attributed to better management practices by local councils following increased EPA enforcement activity and to a greater awareness by the public of the need to protect their air environment. EPA only permits the burning of dry vegetative material at municipal tips.

Industrial waste strategy

In 1986, EPA released an Industrial Waste Strategy, outlining acceptable means of managing industrial wastes. One of the recommendations in the Strategy related to establishing regional waste management strategies.

During the year EPA, in consultation with other organisations, has been developing a regional strategy for the Gippsland area and a draft for public comment is near completion.

The significance of Gippsland's natural features and the need to protect them has made the development of this strategy a high priority. An extensive public consultation program is planned for the coming year to enable full public debate of the issues and the options available for handling our industrial wastes.

Waste minimisation

SECV commenced a program of treating existing timber power poles with a paste of ammoniacal

copper fluoborate. This comes in disposable plastic cartridges and approximately 20-30 ml of the material remains in the nozzle after each application. With the proposed usage put at 120 000 cartridges, EPA requested SECV to re-examine its procedures. The Commission has now designed a re-usable nozzle, saving SECV a considerable amount of material as well as reducing wastes.

Gippsland Lakes

Following the severe blue-green algal bloom of early 1988, monthly water quality monitoring of five sites on the Gippsland Lakes continued throughout the year. A new weekly program was developed to assess nutrient loads entering the Lakes from inflowing rivers. In addition, EPA funded a further detailed study of algal and nutrient dynamics by MSL, to be completed in 1989/90.

Draft reports were completed on two wetland studies. Lake Coleman is discussed in *The Water Environment* section.

Macleod Morass near Bairnsdale will require remedial action following a survey which revealed adverse ecological effects of sewage discharge and town run-off including leachate from a disused tip. A management plan will be developed in consultation with DCFL, Mitchell Water Board, the Town of Bairnsdale and the local community.

Benambra mining project

Macquarie Resources will be proceeding with a bulk ore extraction for assessment purposes. This is the first step towards what may become Victoria's largest base metals mining project.

EPA involvement included monitoring of interim minewater management arrangements and biological studies of the upper Tambo River. The north branch of the Tambo is stressed by a natural spring which leaches metals from the ore body at Wilga. Studies have concentrated on quantifying the load discharged from the spring and its zone of biological influence. This is essential to developing licence conditions for the proposed discharge from a future ore processing plant.

Effects of forestry on streams

Renewed attention has focused on the effects of forestry activities on stream water quality and aquatic life with the release and assessment of the Environment Effects Statement (EES) for the value adding utilisation system of timber harvesting.

For the past four years EPA has been monitoring water quality and invertebrate fauna in national estate forests east of Goonegerah in the Brodribb River valley. Results to date have implicated inputs to streams during wet weather. Better design and maintenance of road crossings of streams are being required.

Australian Char (Holdings) Pty Ltd

The company operates a coal processing works at Morwell, converting brown coal briquettes into char as a purified fuel in steel manufacturing. The liquid effluent generated in the process is high in phenols and when not recycled, it is disposed by incineration, evaporation or discharge to sewer.

On 6 January 1989, a discharge of wastewater occurred into Bennett's Creek, which flows past the company's plant and into an ornamental pond at the Shire of Morwell Civic Centre. Following the discharge, dead fish and eels were observed in the pond. As a result of investigations into the incident, the company has now been charged with two counts of water pollution and one count of unlicensed discharge of wastewater.

COMMUNITY EDUCATION AND INFORMATION

EPA is playing an increasingly important role in educating and involving the public in its decision making. We all need to play a part in environmental protection and realise that we are part of the pollution problem as well as its solution.

The Community Affairs Branch fosters community interest and involvement in EPA's activities and provides a wide range of information and education services.

It is responsible for media, publicity, publications, display, photographic and video services for EPA and co-ordinates community education activities, including the listening role of community liaison, through to mail-outs of material to students and the public.

More than 250 000 items were printed and distributed to the public over the past year. The area in highest demand was educational material for primary and secondary schools. See *Appendix S* for a complete list of available publications. Special publications included:

- 1989 Clear Air Calendar;
- Draft Landfills Policy and two amendments;
- Latrobe Valley Ocean Outfall Information Bulletins 1 & 2;
- Global Pollution News; and,
- Disposal of Biomedical Wastes Information Bulletin.

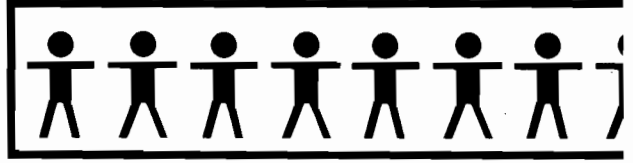
Media services included distribution of more than 120 news releases.

The first half of the year showed an increasing interest in environmental issues. However, in the second half the increase in interest was dramatic across all media. Radio, television and press enquiries rose by an unprecedented 400 per cent and consequent public enquiries by over 500 per cent.

Media interviews totalled 1054 events, of these 287 occurred in the first half of the year, 767 in the second half.



EPA received unprecedented requests for printed material over the last year. Here Community Affairs Branch staff (left to right) Toni Meek, Carol Vincent and Peter Jordan pitch in to send out some of the 250,000 items requested by schools and the general public.



Other indicators of increased public interest included the following:

- Clear Air Campaign Primary School poster competition entries rose from 4000 to 5500 participating students, which saw an increase from 50 to 80 schools entering the competition;
- Information requests in May and June consumed 12 months supply of printed publications in eight weeks;
- Speaker requests for community groups and schools increased ten fold;
- World Environment Day, 5 June, generated so much increased phone enquiries that two extra telephonists were needed to process calls.

A major change in the year was the nature of enquiries. Apart from the huge increase overall, a new audience of people wanted to know what they could do in their own lives to minimise the negative effects their actions had on the environment. Major areas of interest included recycling of plastics, paper, glass, safer chemicals in the home, information on environmentally-acceptable consumer products, CFCs and the greenhouse effect.

During the year the Branch handled more than 12 000 telephone and mail enquiries.

Major publicity activities conducted during the year included:

- Launches of plastic recycling scheme at City of Brunswick;
- Clear Air Campaign/Smoky vehicles campaign;
- Clean Technology Incentive Scheme;
- Rural Chemical Collection: in co-operation with the Department of Agriculture and Rural Affairs;
- Putting Out the Fire, Halons Conference;
- Waste Minimisation: launch of draft policy; and;
- Launch of Global Pollution News.

Clear Air Campaign

This year EPA's annual Clear Air Campaign encouraged people to keep their cars well tuned and in good repair to ensure that smoky vehicles did not cause smog problems. The Campaign also encouraged household recycling and composting as clean and effective alternatives to incineration disposal of paper, cardboard and garden litter.

The winner of the Clear Air Award for 1989, announced by the Minister for Planning and Environment Tom Roper, was Portland City Council. They installed a pollution free, geothermal-heating system which uses hot artesian bore water to heat its municipal building swimming complex, a hotel and police station; all previously heated by gas and oil.

Portland saves over \$200 000 per annum in heating costs and in a simple and cost-effective way, uses a previously untapped natural resource to its best advantage. By removing its dependence on fossil fuels, Portland has also made a positive contribution to lessening the use of fossil fuels which contribute to the greenhouse effect.

This year's Clear Air Poster competition attracted entries from more than 80 primary schools throughout the State, representing over 5500 students. Sponsors included: Australian Airlines; LR & NR Gedye Pty Ltd; Kodak (Australasia) Pty Ltd; the Royal Melbourne Zoological Gardens; VLine; The Hoyts Corporation Pty Ltd; The Little Bookroom; The Nurserymen and K Mart, Brunswick.

Over 700 entries were displayed in the shop front window of EPA's Scientific Laboratories located at 546 Collins Street, Melbourne. A kerb side presentation was held in Collins Street to announce and present the winners with their awards and prizes. The winning twelve posters will be incorporated into an attractive 1990 wall calendar, available later this year.

The most outstanding poster winner was Adrian Cook, Grade 6, from Trafalgar Primary School.



Tom Roper (right) congratulates Portland City Council Deputy Chief Executive Neil Buckingham on Council's win in the Clear Air Award. Channel 2 news presenter Edwin Maher joins in the congratulations.



Tom Roper congratulates Renee Williams of St Patricks Primary School, St Arnaud, who was one of 12 winners in EPA's Clear Air poster competition for primary schools. The 12 winning posters will be used in the 1990 EPA Clear Air Calendar. Over 5500 students entered the annual competition.

Rural Chemical Collection

This scheme involved mailing out advice to 20 000 farmers and householders in north central Victoria, offering to collect unwanted or prohibited chemicals. Towns involved were Boort, Kerang, Cohuna, Echuca, Rochester, Nathalia, Kyabram, Cobram and Shepparton. The collection was successful in getting 923 people to hand in over 55 tonnes of chemicals. It is expected that the scheme will be extended to a statewide operation.

Community Liaison

EPA created the position of Community Liaison Officer at the start of the year and appointed Ms Toni Meek to the position.

Ms Meek has been working with a wide variety of community groups discussing local environmental problems, as well as visiting and speaking to schools on environmental education issues. The community liaison role enables EPA to work more closely with local communities to get a shared understanding of problems and issues and to work towards resolving differences.

Pollution Complaints

EPA operates a pollution complaints service between 8.00 a.m. and 5.00 p.m. The complaints number is (03) 628 5777. After 5.00 p.m. an answering service is used which is monitored regularly for emergency situations. Other overnight complaints are followed up as soon as possible. The public are encouraged to report pollution incidents and provide relevant details such as location, time, nature of the problem and the source, if they are known. All pollution complaints are recorded and the 8337 received over the reporting period are detailed in the appendices.

Out-of-hours and weekend surveillance by EPA has been stepped up to detect and discourage companies who believe they can safely pollute during such periods.

EPA Video Conference Series

In order to cater for increased requests for speakers on environmental topics, EPA has introduced the EPA Video Conference Series. These are not professional studio presentations, they are live recordings of actual public seminars. These videos are available on VHS format on inter-library loan from EPA's library, Ground Floor, Olderfleet Buildings, 477 Collins Street, Melbourne, telephone (03) 628 5064.

Video titles include:

- Clear Air for Kids
- The Greenhouse, Gumtrees and Garbage seminar tapes, covering the topics of recycling, clear air, backyard incineration and landfills.
- Protecting the Ozone Layer - What CFCs Do!

ADMINISTRATIVE SUPPORT

With EPA's Head Office now well established in the Olderfleet Buildings at 477 Collins Street, Melbourne, priority has been placed on improving the accommodation of the metropolitan and country offices.

Successful arrangements were completed to relocate the Dandenong Office to more prominent premises on the Princes Highway which will improve service delivery. It is projected that fit-out works and relocation will take place early in the 1989/90 financial year.

Negotiations are well advanced to relocate the Bendigo Office to more suitable premises in the Mall co-located with the Ministry for Planning and Environment, resulting in better access for the public and industry.

The strong emphasis on establishing efficient computer-based information systems will continue with a range of new systems and further improvements to existing services.

A Strategic Computer Information System Plan is being prepared to identify and address EPA's future needs and to assist the existing Computer Systems staff with systems issues.

Human Resource Management

The Human Resource Management (HRM) delegations have significantly improved efficiency gains and the recruitment process. The average time to fill a vacant position is now two and half months instead of three and a half months as previously experienced.

Administration in the Operations Division underwent a review and was subsequently revised to provide a more efficient and effective group. This will give broader career opportunities for staff in the administration stream.

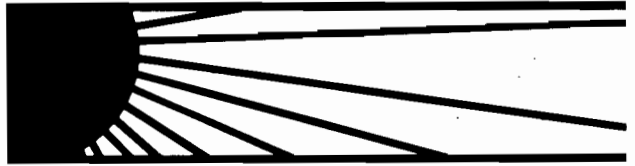
The Public Service Board began a review of EPA's use of its HRM delegations in June 1989. The review will determine the effectiveness of classification, personnel services and recruitment decisions undertaken under delegation.

The HRM Branch has provided line managers with training, as well as policies and guidelines

on human resource matters, giving them greater responsibility, accountability and more direct involvement in the recruitment process.

Four hundred and ninety-nine delegations have been exercised this financial year relating to classification, recruitment, leave and secondments. Forty-seven permanent staff left EPA and the total number of provisional promotions/transfers within EPA was sixty-two. Eleven officers were promoted/transferred from other Victorian Public Service Departments. A total number of two appeals were lodged with the Promotions Appeals Board. Due to the continued high turnover in staff and the major policy initiative relating to waste minimisation, 62 temporary staff were employed during 1988/89.

The HRM Branch has also participated in the induction process for new staff.



Staff Training and Development

The increasing level of expectation required within EPA to effectively carry out its functions along with the high staff turnover has resulted in training and development being given a high priority. A specialist Staff Training and Development Officer (new position) was employed in August 1988. The Officer is responsible for co-ordinating all training and development activities throughout EPA to enhance organisational and individual effectiveness.

Staff training and development priorities are identified using information from the Team Member Development (TMD) Scheme operating within EPA. These priorities are developed in consultation with Managers, staff, and members of the Staff Development Committee.

A broad range of both technical and general training courses are provided for staff. Where staff have particular needs that cannot be catered for inhouse, they attend external courses, subject to funding.

A number of technical training courses were developed and conducted for staff in the following areas:

- basic toxicology;
- air quality;
- water sampling;
- plume calculation procedure.

Technical training will be expanded further to cater for the growing needs.

General training was offered in the following areas:

- management and supervision;
- financial management;
- computers;
- MS word training for keyboard and non-keyboard staff;
- staff selection;
- communication skills;
- stress management;
- presentation skills;



Staff training is a vital part of EPA's Human Resource Management. Here Staff Development Officer Linda Smith leads a group session.

- client services;
- career planning;
- records management.

Legal aspects training was given high priority during the reporting period, with 40 officers completing the five-day legal training program. Officers are required to update their legal training every five years.

Equal Employment Opportunity

EPA has continued to promote the Government's Equal Employment Opportunity (EEO) principles and practices. During the year, employment has been provided to two disabled persons and one Aborigine. EPA's Head Office has been adapted to better accommodate physically-disabled employees and members of the public. Continued support is provided for holiday childcare programs for employees.

Transport

EPA has a vehicle fleet of 104, of which 22 were changed over during the financial year.

Financial Management

EPA was allocated a budget of \$12.247 million for 1988/89. EPA's budget was restructured in 1987/88 to reflect regionalisation and is divided into three major sub-programs: Policy and Scientific Services; Operations; and, Program Support. Financial details of each sub-program are contained in the appendices.

Financial management functions include arranging payment for goods and services purchased for EPA operations; receiving revenue from licence fees, on the spot fines and applications for works approvals; maintaining accounting records; and, reporting on financial transactions. The Administrative Services Division co-ordinated the preparation of annual expenditure estimates, monitored budget expenditure and advised managers on financial and budgetary control matters.

For the 1988/89 financial year, EPA received special allocations to conduct studies into the

greenhouse effect, waste minimisation, hospital biomedical wastes and to provide grants to local government for the introduction of innovative recycling schemes.

EPA also received additional funding to develop guidelines for the rehabilitation of contaminated sites, the rural chemicals collection, and the transport and disposal of toxic chemicals overseas.

Funds of \$500 000 were allocated in the Budget to establish the Clean Technology Incentive Scheme for industry to invest in new low-waste processes.

Treasurer's advances were received for the clean-up of dumped chemicals at Laverton and for the organisation of a major scientific symposium dealing with halons.

There was also an increase of 510 per cent recorded for revenue received from the issue of on the spot fines/penalty notices.

EPA obtained further funding for a three-year program to replace obsolete and unserviceable equipment and upgrade essential laboratory facilities.

The computerised Assets Register continued to be updated to meet the requirements of the Department of Management and Budget.

Overseas Travel

In 1988/89 two officers undertook overseas study tours. Carsten Osmer, acting Manager, Emergency Response and Chemicals, spent 28 days in Canada, USA, UK and the Netherlands, studying methods used for rehabilitation of sites contaminated by industrial residues and wastes. Jack Chiodo, Principal Consultant, Assessments, visited Canada, USA and West Germany during a three-week study tour on hospital waste disposal management in these countries.

Freedom of Information

During the past year, EPA received a total of 90 Freedom of Information (FOI) requests, a 38 per cent increase over the previous year.

No particular reason is known for this increase as the requests covered a wide range of subjects. Full or partial access to the requested material was granted in most cases.

Subjects requested included major items such as:

- the importation of cement produced overseas;
- municipal waste disposal sites throughout the State;
- proposed resin plants in Clayton and Springvale;
- major works in Gippsland and the Latrobe Valley; and,
- a major fire at a transport depot in Footscray.

The *Freedom of Information Act 1982* allows applicants to apply to EPA's Chairman to review any decision to exempt any material from access. During the past year, nine requests were made.

Six exemption decisions were upheld and one decision that the requested material could not be located was also upheld. Another applicant was advised that their request for a review was made prior to the 45-day expiration period and was therefore not within the provisions of the Act. As at 30 June 1989, a decision was still pending in respect of the remaining request.

Two applicants, who applied to the Chairman for reviews of the initial decision and were subsequently refused access or advised that the particular documents could not be located, lodged appeals against these decisions with the Administrative Appeals Tribunal (AAT).

Following deliberations before the AAT, one appeal was adjourned *sine die* and the other was adjourned to allow the Office of the Ombudsman time to prepare a report on the matter of non-existent documents. This latter appeal was subsequently withdrawn, following the provision of the Ombudsman's report.

ENVIRONMENT COUNCIL

The Council is established under the Environment Protection Act to advise the Minister for Planning and Environment on the administration of the Act and on matters referred by the Minister.

The Council consists of 12 members, appointed by the Minister, from a broad cross section of the community. The members at 30 June 1989 were:

Brian Robinson (Chairman) (EPA)
Harry Schaap (Deputy Chairman) (SECV)
Geoff Angus (Shell)
William Davern (ex CSIRO)
Patricia Geraghty (CIT)
Jonric Ridley (FEDFA)
Anita Schulz (ACM)
John Scott (WILKE)
Susanne Tepe (ICI)
Ian Thomas (MONASH UNIVERSITY)
Kathleen Wilmot (ACF)
Geoffrey Nougher (Acting Secretary) (EPA)

Throughout the year, the Council advised the Minister on a range of important issues, contributing to discussions on chemical collection, site decontamination, ozone layer protection, the greenhouse effect, and industrial noise policies.

Council also made recommendations directly to EPA on draft policies, legislation and the administration of the Act.

It maintained a good working relationship with EPA staff and assisted officers with advice and access to industry and community groups.

Working Groups

Several working groups were established to review specific policies, EPA procedures and systems. Reports were presented to Council on each of the working groups tasks.

Chemicals Project

The purpose of the chemicals education project is to generate a greater understanding in the community of the benefits and hazards of chemicals.

The members of the working party are compiling and assessing existing activities and information in this area, encouraging other relevant bodies to take an active role and preparing resources for schools, teachers and the media.

Industrial Noise

At the Minister's request, a sub-committee was established to review the SEPP N-1 on noise.

The sub-committee is examining the 1981 Policy's adequacy to deal with industrial noise problems in the metropolitan area and examine how such issues can be effectively dealt with in rural areas.

Its review, so far, has concluded that compared to world standards, the Policy is very stringent.

It is continuing to examine noise from existing major industrial sources, small trade or commercial sources and non-continuous noise sources and will produce a final report for the Minister later this year.

Specialist Groups

In view of the escalating interest in environmental issues, the Council considered it important to keep abreast of progress made here and overseas. As a result, it established five specialist groups within the Council covering air, marine land and water, noise and chemicals.

The following draft policies and discussion papers were also submitted to Council for its consideration and comment:

- Industrial Waste Management Policy;
- Noise Policy N-1 Review;
- Policy on Hospital Wastes; and,
- Industrial Noise Review.

The Council visited the Bellarine Peninsula and Geelong to examine local issues first hand and discuss them with local authorities.



APPENDICES

A Complaints Received

	Metro	South-West	North	Gippsland	Total
Air	3242	404	203	458	4307
Noise	2033	158	90	76	2357
Water	915	93	99	71	1178
Land	302	53	66	73	495
Total	6492	708	458	678	8337

B Enforcement Program for Motor Vehicles

Vehicles reported for:	
tampering	542
smoke	1959
noise	4437
Vehicles inspected at dealers, roadside or Vehicle Testing Station	4057
Prosecutions	39
Infringement notices issued	1260

C Infringement Notices Issued

Motor vehicles	1260
Littering	475

D Notices Issued

	Metro	South-West	North	Gippsland	Total
Pollution abatement	150	26	26	39	241
Noise control including burgular alarms	71	9	4	8	92
Clean-up	26	3	—	1	30
Total	247	38	30	48	363



E Approvals Issued

	Metro	South-West	North	Gippsland	Total	% compliance with target
Works approvals	91	17	22	28	158	100
Works notification	26	6	4	0	72	84
Licences issued	40	1	15	11	67	96
Licences amended/ transferred	122	18	39	47	226	NA

F Prosecutions

Defendant	Charge	Court	Date	Result
Cornwalls (Wholesale) Meat Co P/L	1. Pollution of a tributary of the Goulburn River 2. Failure to obtain works approval 3. Unlicensed discharge	Seymour	18/7/88	1. Fine: \$1000 2. Fine: \$500 3. Fine: \$500 Costs: \$623
DIM Furniture (Vic) P/L	Air pollution	Preston	26/7/88	Fine: \$500 Costs: \$490
Hunters Products P/L	1. Pollution of Stony Creek 2. Land pollution	Broadmeadows	3/8/88	1. Fine: \$2500 2. Bond: \$2000 \$1500 Court Fund Costs: \$780
Pacific Dunlop Limited	Pollution of Merri Creek	Broadmeadows	18/8/88	Bond: \$20 000 Costs: \$805
Brambles Holdings Ltd trading as Cleanaway	Breach of land licence (Clayton Tip)	Oakleigh	15/9/88	Fine: \$2000 Costs: \$550
Hamilton Wool Processing & Scouring P/L	1. Unlicensed discharge 2. Breach of licence	Hamilton	29/9/88	Bond: \$100 \$4000 to local charity Costs: \$800
Hurstbridge Abattoirs P/L	Pollution of tributary of Diamond Creek	Heidelberg	13/10/88	Bond: \$500 Costs: \$1118.50

F Prosecutions continued

Defendant	Charge	Court	Date	Result
Pamane P/L	1. Pollution of tributary of Merri Creek 2. Breach of minor pollution abatement notice	Broadmeadows	19/10/88	1. Fine: \$3000 2. Fine: \$500 Costs: \$1812
Southern Dental Industries Ltd	Land pollution (7 counts)	Ferntree Gully	20/10/88	Fine: \$1000 Costs: \$750
Apex Quarries Ltd	Pollution of Mile Creek (2 counts)	Oakleigh	25/10/88	First count bond: \$2000 Second count convicted and fined: \$1000 Costs: \$817
The Shell Company of Australia Ltd	Pollution of Mile Creek	Oakleigh	25/10/88	Fine: \$3000 Costs: \$417
Dowell Australia Ltd	Pollution of Scotchmans Creek	Oakleigh	3/11/88	Fine: \$1000 Costs: \$930
Natra P/L	Installation of plant without works approval	Dandenong	10/11/88	Fine: \$2500 Costs: \$950
Visyboard P/L	Pollution of Mile Creek	Dandenong	18/11/88	Fine: \$500 Costs: \$500
Deltrex Chemicals P/L	1. Unlicensed discharge to underground drain in Churchill Street Williamstown 2. Breach of pollution abatement notice	Williamstown	15/12/88	Fine: \$1200 Costs: \$600
Terminals P/L	Air pollution	Williamstown	16/12/88	Fine: \$2000 Costs: \$500
The President Councillors & Ratepayers—Shire of Korumburra	1. Pollution of a tributary of Foster Creek 2. Breach of licence	Korumburra	9/2/89	Fine: \$6000 Costs: \$1525

F Prosecutions continued

Defendant	Charge	Court	Date	Result
Gary Mathew Kempen	1. Pollution of an unnamed creek and dam in Kangaroo Ground 2. Breach of pollution abatement notice	Heidelberg	29/3/89	1. Fine: \$1000 2. Fine: \$1000 Costs: \$4250
North West Recycling P/L	Pollution of Blackburn Lake and Lake Road Drain Box Hill	Box Hill	17/4/89	Fine: \$1500 Costs: \$767
Westernport Canneries P/L	1. Breach of licence 2. Air pollution	Hastings	26/4/89	1. Fine: \$2000 2. Fine: \$2000 Costs: \$500
Robert Henry Lansbury	Air pollution	Sale	4/5/89	Convicted and fined: \$3000 Costs: \$1860
Hi-Tech Electroplating P/L	1. Unlicensed discharge 2. Breach of pollution abatement notice 3. Land pollution	Williamstown	19/5/89	Fine: \$4000 Costs: \$1132
Spotless Catering Services Ltd	Air pollution	Broadmeadows	30/5/89	Fine: \$500 Costs: \$630
Cementaids (International) P/L	1. Pollution of Gardiner's Creek 2. Air pollution 3. Causing environmental hazard 4. Breach of pollution abatement notice	Box Hill	6/6/89	Fine: \$4000 Costs: \$1853
Cooper Drums P/L	1. Breach of pollution abatement notice 2. Unlicensed industrial premises 3. Potential pollution of Merri Creek	Preston	7/6/89	Fine: \$7000 Costs: \$1050
Rubber Latex (Australia) P/L	Pollution of Darebin Creek	Preston	13/6/89	Bond: \$1000 \$1000 to Court Fund Costs: \$150

F Prosecutions continued

Defendant	Charge	Court	Date	Result
United Carpet Mills P/L	Pollution of Darebin Creek	Preston	13/6/89	Bond: \$1000 \$1000 to Court Fund Costs: \$150
Darren Sinclair Goodman	Causing an environmental hazard and dumping wastes at an unlicensed site	Bairnsdale	22/6/89	Fine: \$4500 Costs: \$610
Ford Motor Co of Australia Ltd	1. Breach of licence 2. Air pollution	Geelong	23/6/89	Dismissed
Southern Paper Converters P/L	Pollution of Moonee Ponds Yuroke Creek disregarding the terms of clean-up notice	Broadmeadows	26/6/89	Bond: \$5000 \$8000 to ACF for use in Moonee Ponds Yuroke Creek system Fine: \$1000 Costs: \$2015
John Anthony Roy	Dumping industrial waste	Korumburra	30/6/89	Fine: \$500 Costs: \$590

G Staff Numbers as at 30 June 1989

	Actual Strength	Ceiling
Executive & Program Support		
Executive	2	2
Executive Support	2	2
Legal Services	4	4
Community Affairs	7	6
Total	15	14
Division of Administrative Services		
Directorate	9	10
Finance & Budget	3	4
Human Resource Management	5	5.5
Registry	3	4
Total	20	23.5
Division of Operations		
Directorate	2	2
Administrative Services	13.5	13.5
Country Regions	41	45
East Metropolitan Region	34	33
West Metropolitan Region	29	34
Motor Vehicles	15	18
Biomedical Waste	3	3
Total	137.5	148.5
Division of Policy		
Directorate	3	3
Projects	27	27
Recycling Unit	6	6
Total	36	36
Division of Scientific Services		
Directorate	6	6
Environmental Studies	24	21
Technical Services	17	24
Total	47	51
TOTAL	255.5	273

H Leave Liability Report

As at 30 June 1989 EPA had outstanding employee benefits including:

Annual leave	\$ 337 027.00
Annual leave loading	\$ 57 476.00
Long service leave	\$1 637 593.00
Total	\$ 2 032 096.00

I Staff Numbers by Occupational Category

Statutory appointees	1
Senior executive	2
Administrative officers	35.5
Clerical officers	27
Coxswain	1
Computer systems officers	4
Engineers	14
Inspectors	31
Legal officers	3
Sandwich students	1
Scientific officers	92
Secretaries	3
Technical officers	21
Technical assistants	2
Town planners	2
Word processing officers	17
Total	255.5

J Staff Turnover by Occupational Category

(including permanent & temporary staff)

	Commencements	Cessations
Senior executive	1	1
Scientific officers	27	15
Administrative officers	10	8
Technical officers	7	7
Technical assistants	1	6
Engineers	6	1
Clerical officers	12	16
Typists	1	2
Legal officers	2	2
Computer systems officers	1	1
Word processing operators	21	13
Inspectors	5	5
Sandwich students	1	2
Town planners	2	1
Publicity & publications	1	3
Total	98	83

K Declaration of Pecuniary Interests 1988/89

The following members of staff have made declaration of pecuniary interest:

Brian Robinson	Doug Newton	Dennis Monahan	Jon Ward
David Horsman	Doug Munro	Colin Gibbs	Robert Monteith
Norm Parris	Carl Schaller	Phil Morgan	David Mackenzie
Wayne Saunderson	Jeff Bazelmans	Robert Joy	Charles Carabott
Jack Chiodo	Doug Buchanan	Peter Fitz	

L Senior Staff Movements 1988/89

Operations Division

David Horsman—appointed Director

Dennis Monahan—appointed Assistant Director, Metro West

Jack Chiodo—appointed Principal Consultant, Assessments

Policy Division

Robert Joy—appointed Director

Jeff Bazelmans—appointed Principal Consultant, Environmental Contaminants

M Summary of Revenue

	1987/88	1988/89
Licence taxation—air		2 242 224.39
—water		226 679.86
—land		812.38
	\$2 652 504.00	\$2 469 716.63
Other Revenue		
Works approval applications	112 173.00	158 989.94
Cert. of compliance	2 550.00	4 364.00
Halon symposium	—	39 931.00
Vehicle testing fees	—	28 645.00
Carrier certificates	25 764.00	43 293.00
FOI	—	457.85
On the spot fines	*17 740.00	134 676.25
Court costs	28 444.00	20 547.02
Permit application fees	53 185.00	44 519.25
	\$239 856.00	\$435 492.31
TOTAL REVENUE	\$2 892 360.00	\$2 905 208.94

*commenced 1/1/88

N Summary of Expenditure

Item	1987/88	1988/89
Salaries & associated costs	7 408 687.24	7 940 297.17
General expenses	2 586 614.96	2 736 552.00
Environment Council	7 000.00	7 315.00
Newport plume tracking/hydrogen study	36 532.00	50 842.00
Works & services	204 685.08	226 479.52
Capital equipment replacement program	472 229.35	492 615.33
Research & other projects	30 000.00	29 950.00
Western suburbs regional action plan	26 933.94	8 409.78
Clean up costs associated with Butlers transport pipe	15 396.00	—
Co-ordinated salinity control	13 000.00	—
Nutrient study	24 714.28	20 525.40
Bayside Sandridge clean-up	250 000.00	—
Vehicle emission project	2 000.00	4 750.00
Melton tip site clean-up	15 462.00	—
Biomedical waste disposal	—	72 336.30
Rehabilitation of contaminated sites	—	—
Halons symposium	—	28 839.38
Walpeup storage site clean-up	—	9 189.53
Chemical clean-up Laverton	—	7 502.77
Rural chemicals collection	—	145 510.36
Clean technology incentive scheme	—	500 000.00
Waste recycling	—	220 000.00
Total	\$11 093 254.85	\$12 501 114.54

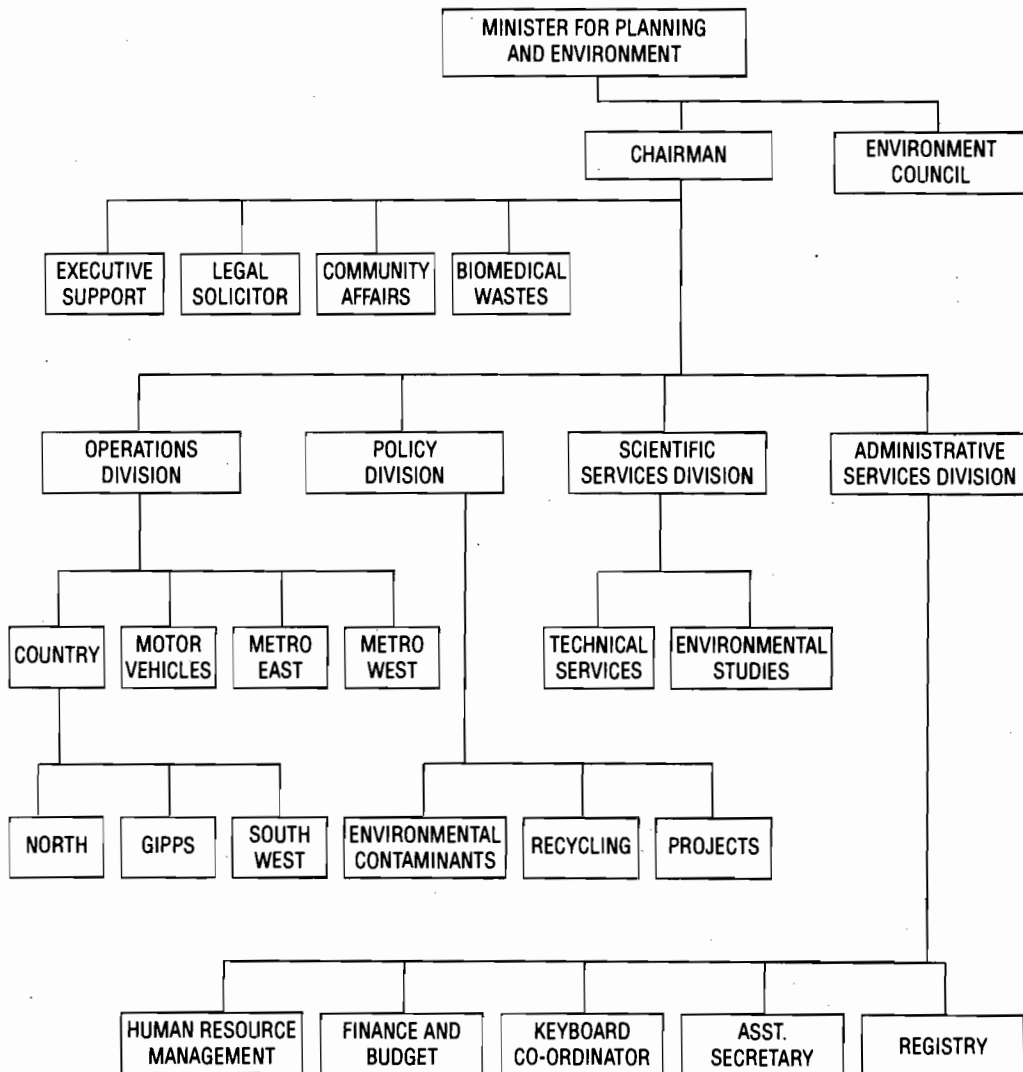
○ Budget Allocation

The Authority's budget is structured in terms of six major sub-programs: program support; policy and projects; scientific services; country operations; metropolitan operations and mobile sources.

This following table details the allocation of revenue to each sub-program together with details of special projects.

Item	Program Support	Policy and Projects	Scientific Services	Country Operation	Metro Operation	Mobile Sources	Totals
Salaries	\$7 545 645	\$166 000	\$12 500	\$21 300	\$60 500	\$11 000	\$7 816 945
Operating							
Publicity	114 400						114 400
EDP	28 512	23 431	171 493	27 292	10 500	5 200	266 428
Lab. services	27 265	4 070	284 130	108 585	76 500	39 100	539 650
Control and MGMT		90 570	112 580	101 205	51 600	18 200	374 155
Payment to State Labs			579 200				579 200
Other support	862 837						862 837
Total	\$8 578 659	\$284 071	\$1 159 903	\$258 382	\$199 100	\$73 500	\$10 553 615
Special Projects							
Western suburbs regional action plan							29 410
Works and services							309 620
Capital equipment replacement program							497 800
Co-ordinated salinity control							30 200
Research and other projects							30 000
Environment Council							7 315
Nutrient study							24 710
Newport plume tracking/hydrogen study							110 000
Vehicle emissions project							6 000
Biomedical waste disposal							4 000
Rehabilitation of contaminated sites							9 000
Halons symposium							30 000
Walpeup storage site clean up							30 000
Chemical clean up, Laverton							7 503
Rural chemicals collection							165 000
Clean technology incentive scheme							500 000
Waste recycling							220 000
Total							\$12 634 173

P Organisation Chart 30 June 1989



Emergency Response Incidents 1988/89

Date of incident	Location	Brief incident report
5/7/88	Morwell	Transport accident involving diesel fuel leak
7/7/88	Elsternwick	Illegal roadside dumping of one drum of toluene
16/7/88	Bonnie Doon	Transport accident involving pool chlorine
16/7/88	Cheltenham	Factory fire—no chemicals involved
17/7/88	Mount Eliza	Small spill of PCB from transformer
21/7/88	Ballarat	Transport accident involving diesel fuel
22/7/88	Coode Island	Factory spill of chemicals
28/7/88	Footscray	Chemical leaking from old drums at factory
29/7/88	Ashwood	Oil/diesel leak into creek
2/8/88	Coburg	Factory fire
4/8/88	Surrey Hills	Petrol spill at service station
4/8/88	Clifton Hill	Transport accident causing diesel fuel leak
5/8/88	Benalla	Factory spill of CCA which entered drain
21/8/88	Geelong	Fumes from a fumigant in a residential area
24/8/88	Box Hill	Factory spill involving solvents
5/9/88	Kaniva	Transport accident involving chemicals—fire
23/9/88	Shepparton	Diesel fuel leak from factory
8/10/88	Woodend	Discovery of hospital wastes on roadside
8/10/88	Violet Town	Transport accident involving diesel spill
9/10/88	Frankston	Transport accident involving pesticide spill
9/10/88	Williamstown	North Factory fire involving chemicals
14/10/88	Euroa	Transport spill of mixed load including chemicals
16/10/88	Moyhu	Illegal disposal of pesticides in tip
20/10/88	Footscray	Chemical spill of liquid dye
22/10/88	Mornington	Spill of three bags of ammonium nitrate in warehouse
22/10/88	Boronia	Roadside spill of 50 L of diesel
22/10/88	Yarram	Transport accident involving diesel
26/10/88	Sunshine	Factory fire involving solvents
10/11/88	Bulla	Fire involving car tyres
10/11/88	Kiewa	Transport accident involving sodium hydroxide
28/11/88	Footscray	Large warehouse fire involving chemicals
7/12/88	Horsham	Transport accident involving molten bitumen
10/12/88	Keilor	Drums of sodium hypochlorite found in quarry
22/12/88	Ascot Vale	Chemical spill from 200 L drum on road
22/12/88	Footscray	Spill of 5000 L of cyclohexane in factory
23/12/88	Braeside	Fire at factory involving chemicals
30/12/88	Richmond	Ammonia leak at a factory

Q Emergency Response Incidents 1988/89 continued

Date of incident	Location	Brief incident report
4/1/89	Deer Park	Acid leak causing formation of gas cloud
7/1/89	Bundoora	Oil spill into drain
7/1/89	Ferntree	Gully Factory fire
9/1/89	Oakleigh	South Factory fire involving solvents
11/1/89	Oakleigh	Transport accident involving one drum of chemical
15/1/89	Reservoir	Transport accident—small amount of chemicals
19/1/89	Northcote	Chemical spill at a factory
20/1/89	Seymour	Transport accident causing spill of chemicals
25/1/89	Lara	Transport accident—spill of wax
1/2/89	Stony Creek	Fuel spill into drain
1/2/89	Bayswater	Transport accident—solvent wastes ignited
3/2/89	Preston	LPG leak at service station
4/2/89	Clayton	Fire at tip
6/2/89	Kerang	Transformer oil spill caused by lightning strike
7/2/89	Bundoora	Illegal disposal of solvents
20/2/89	Shepparton	Factory spill involving hydrochloric acid
20/2/89	North Melbourne	Small chlorine leak at factory
26/2/89	Port Melbourne	Warehouse fire involving furniture
1/3/89	Footscray	Leak discovered in shipping container by VLine
1/3/89	Altona	Discharge of chemical due to overheating of a vessel
3/3/89	Dandenong	Transport accident involving resin wastes
5/3/89	Wallan	Transport accident involving chemical spill
6/3/89	Mornington	Small petrol spill into drain
8/3/89	Altona	Factory fire in dangerous goods store
8/3/89	West Footscray	Factory fire involving baghouse
4/4/89	Doveton	Transport accident involving one drum of polyol
6/4/89	Altona	Factory spill involving oil
17/4/89	Dandenong	Oil spill at factory
21/4/89	Marong	Transport accident causing small chemical spill
24/4/89	Footscray	Chemical spill at factory
25/4/89	Altona	Petrol leak from pipe at factory
1/5/89	Mentone	Chemical spill from factory to stormwater drain
3/5/89	Moorabbin	Petrol discovered in sewer
5/5/89	Heidelberg	Petrol fumes from disused underground tank
12/5/89	Moorabbin	Petrol leak to sewer
15/5/89	Sunshine	Uncontrolled process reaction at factory
15/5/89	Croydon	Transport accident—petrol spill from tanker

Q Emergency Response Incidents 1988/89 continued

Date of incident	Location	Brief incident report
18/5/89	Footscray	Transport accident spill involving vegetable oil
20/5/89	Cann River	Transport accident involving spill of acid
4/6/89	Moe	Factory fire
5/6/89	Yarraville	Transport accident—petrol spill from tanker
6/6/89	Clayton	Transport accident causing diesel fuel leak
7/6/89	Ballarat	Petrol spill of 14 000 L at service station
7/6/89	Ballarat	Transport accident—petrol spill from tanker
12/6/89	Mornington	Petrol spill of 50 L from service station
13/6/89	Somerton	Transport accident involving 10 drums of chemicals
16/6/89	Seymour	Transport accident—large petrol & diesel spill
28/6/89	Dingley	Transport accident involving mineral oil
28/6/89	Heidelberg	Small factory fire with sodium hydrogen sulphite

R EPA Offices

	Telephone	Fax
EPA Head Office 477 Collins Street, Melbourne 3000	(03) 628 5111	(03) 628 5699
EPA Ballarat Office Cnr Main & Doveton Streets, Ballarat 3350	(053) 37 0742	(053) 37 0507
EPA Benalla Office Town Hall, Nunn Street, Benalla 3672	(057) 62 1176	(057) 62 5307
EPA Bendigo Office 391 Hargreaves Street, Bendigo 3350	(054) 42 4393	(054) 41 2146
EPA Dandenong Office 1st Floor, 106 Foster Street, Dandenong 3175	(03) 794 0677	(03) 794 5188
EPA Geelong Office Cnr Little Malop & Fenwick Streets, Geelong 3220	(052) 26 4825	(052) 26 4510
EPA Gippsland Office Hazelwood Road, Traralgon 3844	(051) 74 1337	(051) 74 7851

S Publications

Available from Community Affairs Branch, 6th Floor, 477 Collins Street, Melbourne, 3000.

General

Annual Report 1987/88
Annual Report 1988/89
EPA Protecting the Environment
EPA in the Country
* Review Act Kit
Annoyed by Noise?
Control of Noise from Commerce, Industry and Trade

Primary School Packs

A Breath of Air
Living with Water
Noise is Annoying
Recycling Around Town
Kangaroo Creek Gang (Recycling Video)

Posters

Don't Waste our future
Don't drive a noisy car
Money to burn, can you afford the cost?
Stop smoking your neighbour out

Air

* Air Monitoring Results 1986
Clean Air Campaign
Let's Clear the Air
EPA Vehicle Testing Station
Recommended Buffer Zones for Industrial Residual Air Emissions
Smoke is No Joke

Air Information Bulletins

Control of Incinerators and open burning in residential areas: Explanatory notes on Model By-Law
Guidelines for Open Burning
* Insulated Wire Burning Regulations
Protection of the Ozone Layer
* Recycling, Granulating or Stripping Insulated Wire or Cable Storage and Transfer of Volatile Organic Liquid Regulations
Latrobe Valley Airshed Study—Summary
Unleaded Petrol

A Guide to Unleaded Petrol—Catalyst Strategy
Costs and Benefits
Do Catalytic Converters Cause Fires
Farmers and Fleet Operators
Those Other Engines
Unleaded Petrol and Motorcycles

Waste

Don't Waste Our Future
Industrial Waste Strategy, Recommendations and Implementation
Draft State Environment Protection Policy (SEPP)—Siting and Management of Landfills Receiving Municipal Wastes
Guidelines for storage and disposal of unwanted agricultural chemicals and chemical containers
Everyone's guide to living with less waste

Waste Information Bulletins

Dangerous Goods Requirements for the Transport of Industrial Waste
Immobilisation Techniques for Hazardous Waste
Summary of the Industrial Waste Regulations
* Waste Management Guide: The Disposal of Asbestos Waste
Waste Management Guide: The Disposal of PCB Wastes and PCB Contaminated Materials

S Publications continued

Water

A Water Quality Assessment of the Werribee and Little Rivers

* An Assessment of Water Quality in East Gippsland

Guide to the Sampling and Analysis of Water and Wastewater: 5th Edition

* Water Quality Gippsland Lake Inputs

Western Metropolitan Region Water Quality

Wastewater on Land by Irrigation

Water Information Bulletins

Erosion Controls for Construction Sites: A Checklist
Vehicle Wash Regulations

Waters of Dandenong Valley: Explanatory notes

Waters of Victoria: Explanatory notes

What is water pollution?

Latrobe Valley Ocean Outfall Sewer

Guidelines for the use of antifouling paints

Waste Minimisation: Clean Technology Incentive Scheme

*out of print

T Incinerator By-Laws as at 30 June 1989

Satisfactory

Berwick

Box Hill

Brighton

Camberwell

Caulfield

Coburg

Croydon

Diamond Valley

Essendon

Fitzroy

Footscray

Hastings

Hawthorn

Lillydale

Malvern

Mordialloc

Northcote

Port Melbourne

Prahran

Richmond

Ringwood

St Kilda

Williamstown

Satisfactory—but not quite up to the standard of EPA's model by-law

Cranbourne

Doncaster

Templestowe

Eltham

Heidelberg

Melton

Mornington

Whittlesea

Inadequate—by-law has been improved but not up to standard of EPA's model by-law

Melton

Nunawading

Oakleigh

Pakenham

Waverley

Inadequate—but in process of strengthening or making a by-law

Broadmeadows

Brunswick

Bulla

Chelsea

Frankston

Geelong

Keilor

Knox

Melbourne

Preston

Sherbrooke

Inadequate—no action to be taken till Local Government Act has been amended

Dandenong

Geelong West

Kew

South Barwon

Springvale

Werribee

Inadequate—no action proposed

Bellarine

Collingwood

Corio

Moorabbin

Newtown

Sandringham

South Melbourne

Sunshine

No by-law—no action proposed

Altona

Bannockburn

Barrabool

Bass

Flinders

Phillip Island

Queenscliffe

U Approved Projects for 1988/89

A summary of the approved projects under the Clean Technology scheme in 1988/89 is given below:

1. Quality Heat Treatment – \$80,000
Installing fluidized bed heat treatment process eliminating the cyanide salt baths.
2. Melbourne Mushrooms – \$50,000
Replace odorous composting process by new mechanical odour-free composting technology.
3. Victorian Hides and Skins – \$65,000
Employing new dehairing process in leather processing, developed by CSIRO which is called the "Sirolime Process". The new process will remove the hair from the skins in an intact form compared to dissolving the hair chemically in the old process.
4. Spec Clean – \$49,000
Purchasing a new floor cleaning machine which incorporates water purifying and recycling equipment to reduce water use from 20,000 litres to 2500 litres per day.
5. Eagle Technologies – \$40,000
Replacing CFC based cleaning baths with water based systems to clean the electronic circuit boards.
6. Fildes Pty Ltd – \$13,000
To enable recovery and treatment of ink bearing solvent for re-use.
7. R G Davis Furniture (Vic) Pty Ltd – \$2,000
Installation of solvent recovery unit to enable recycling of waste solvent for re-use.
8. Bailey Motors and Panel Works Pty Ltd – \$6,000
Installing equipment to recover and recycle CFCs from car air conditioners.
9. Williamstown Central Motors – \$7,000
Installing equipment to recover and recycle chlorofluorocarbons (CFCs) from car air conditioners.
10. Rothfaze Pty Ltd – \$13,000
To purchase equipment to reclaim and recycle CFCs from industrial, domestic and automotive air conditioners.
11. Quotilla Pty Ltd – \$33,000
Purchase and installation of equipment to treat fish wastes and produce fish oil and high protein fishmeal.
12. Stokes Ltd – \$38,000
Installing an alternative process to blacken steel which avoids dichromate baths.
13. Tech-dry Building Protection Systems – \$18,000
Installation of equipment to eliminate generation and disposal of highly volatile solvent wastes as it enables the use of water based chemicals for concrete protection.
14. Gainsborough Hardware – \$30,000
Installing an eletrophoretic resin application process replacing traditional electroplating baths.
15. Watty Ltd – \$15,000
Installing a distillation unit for on site recycling of waste solvents which avoid transporting of the dangerous solvents.