

Safety Health & Environment Progress Report 2002

1 October 2001-30 June 2002

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Scope of report

This report covers the safety, health and environmental (SH&E) performance of Australian Vinyls Corporation's operations for the nine months to 30 June 2002. It reports against the commitments and targets set for the period from 1 October 2001 to 30 September 2002. Following a change in ownership of the company in February 2002, the company moved to a 30 June financial year end. Australian Vinyls' SH&E reporting - to regulatory authorities and the community - is being adjusted to match the financial year reporting.

The report outlines a set of new SH&E commitments for the 12 months to 30 June 2003.

Australian Vinyls

- Australia's only manufacturer of PVC resin

Australian Vinyls manufactures polyvinyl chloride (PVC) resin at its Laverton plant. The plant has a capacity of about 130,000 tonnes per annum.

We also source, import and sell a range of specialty products such as PVC paste resin, thermoplastic elastomers and process additives for internal use and for sale to other PVC and rubber processing industries. The company also operates a research laboratory at Ascot Vale.

In February 2002, Australian Vinyls' shareholders Orica Limited and PolyOne Corporation (USA) sold the company to a consortium led by the company's former Managing Director, Murray Winstanley. Mr Winstanley has resumed the position of Managing Director. The consortium is supported by a group company of CPH Investment Corp.

Key events 2001-02

- Emissions of the reaction initiator, X16 exceeded licence limits on two occasions during the reporting period. Two people suffered minor symptoms from a small release of X16 at a purge point.
- Water consumption has been reduced by 30% from 1998-99 levels
- Greenhouse gas emissions are 21% lower than 1998-99 levels, although still above our internal targets and Greenhouse Challenge goals.
- Our Laverton plant was issued a licence as a Major Hazard Facility (MHF) in June 2002, following completion and lodgement of the plant's Safety Case.
- Emergency response plans, required under the MHF Regulations have been revised and lodged with the authorities.
- Process improvements have contributed to further reductions in VCM emissions.
- Our Permit to Work system has been revised to adopt best practice standards.
- Australian Vinyls has entered into a partnership with City West Water to audit our water use and identify options for water conservation.

At 30 June 2002, Australian Vinyls employed 112 people and 12 full time contractors.

PVC resin is classified as non-hazardous according to National Occupational Health & Safety Commission (NOHSC) criteria and criteria referred to in storage and transport legislation. It is used to make a wide range of products including pipe and pipe fittings, cable insulation, flooring, flexible and rigid packaging and various consumer goods.

Policies and SH&E Management

Australian Vinyls has adopted and implements a Safety, Health & Environment (SH&E) Policy, the overriding objective of which is to manage its activities with respect and care for people and the environment. A copy of our policy can be found on our website at www.av.com.au

The terms of our SH&E Policy provide the framework for setting priorities in environmental and safety improvement. The commitments made through our corporate SH&E reporting are consistent with these priorities.

The company is a signatory to the chemical industry's Responsible Care program, details of which are available at www.pacia.org.au

Reporting to the community

Australian Vinyls is committed to the principle of Community Right to Know ('CRTK'). We recognise the rights of individuals to have access to information about how chemicals are managed and regulated and about our company's safety, health and environmental performance. This report is one of the mechanisms we use to share information on our performance with the community.

CRTK enables members of the community to enter into dialogue with those people responsible for managing chemicals, their hazards and risks, or for regulating them.

Australian Vinyls has established an Environmental Monitoring Team (EMT) involving local residents and statutory authorities to provide input into its Environmental Improvement Plan for the plant and to monitor SH&E performance and progress against the Plan. We appreciate the contribution community members, in particular, have made in this respect.

Australian Vinyls holds other stakeholder forums from time to time, for example, for seeking input into our corporate SH&E reporting.

Report against commitments

Health & Safety

Table 1: Health and Safety Indicators

Indicator	Target Oct 01 - Sep 02	Progress (9 months to 30 Jun 02)	Target (Jul 02 - Jun 03)
Recordable injury case rate per 200,000 employee hours	0	1.5	0
VCM exposure: No of exposures >1 ppm	8	4	8
No of exposures >5 ppm	0	1	0
Compliance with 5ppm limit	100%	99.79%	100%

Australian Vinyls registered two recordable case injuries in the reporting period: a strain requiring short term restricted duties and a strain needing medical treatment. Our Recordable Case Rate increased from 1.0 in 2000-01 to 1.5. Australian Vinyls regrets any injury to its people during their work. All injuries are investigated to identify both specific causes and actions to minimise the likelihood of a similar event being repeated.

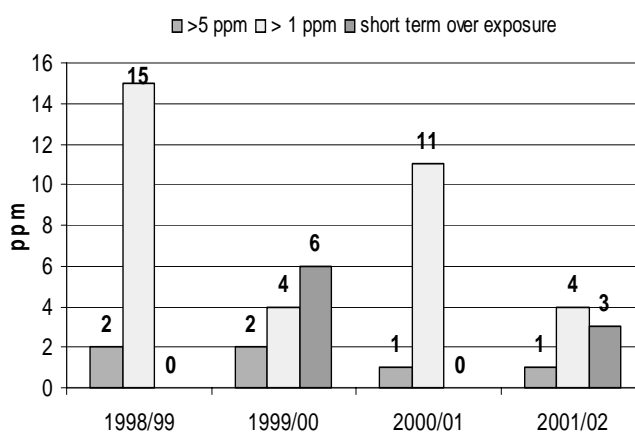
We continue to focus on eliminating risks from our operations and to reinforce safe working behaviours and practices.

Australian Vinyls maintains a comprehensive health monitoring program for employees. This includes medical examinations for people potentially exposed to VCM. All employees scheduled for a health assessment in the reporting period completed the assessment.

VCM exposure monitoring

People who work in the manufacturing areas are monitored for VCM exposure using carbon tubes attached to clothing. Similar to last year, we had one recorded exposure over the NOHSC eight-hour time weighted average exposure standard of 5 parts per million (ppm). As a result we did not meet our target of zero.

Chart 1: VCM Personal Exposures



However, in terms of our more stringent internal standard of 1 ppm, we saw some improvement over last year, with 4 exposures recorded, compared to 11 previously, and our target of 8 for the full year.

On each occasion when an exposure is recorded, incident reviews are undertaken including an assessment of the task being undertaken at the time of exposure, and corrective actions are put in place to eliminate or minimise future exposures.

Chart 2: Laverton Personal VCM Exposures 1997- 30 June 2002

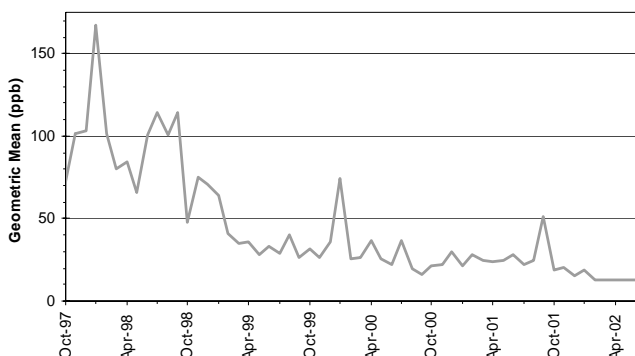


Chart 2 shows the average exposure to VCM recorded during a shift on a daily basis and how exposure today is significantly lower than in the past.

Residual VCM

Under our EPA licence, we monitor the level of VCM in resin prior to final drying. We investigate any incidents where the level is greater than 10 ppm and report to the EPA any exceedences of 100 ppm, the

limit given in the State Environment Protection Policy (SEPP).

During the reporting period, we had one exceedence of 100 ppm (actual reading of 114 ppm).

Australian Vinyls' product quality specifications guarantee that the amount of VCM in the resin is less than 1 ppm before despatch to customers. It is generally below 0.5 ppm. The average residual VCM for the period was 0.09 ppm.

Environmental Indicators

Indicator	Target (1 Oct 01-30 Sep 02)	Progress(9 months to 30 Jun 02)	Target (1 Jul 02 - 30 Jun 03)
VCM point source emissions (to air and water)	5.2 g/tonne PVC <i>Refer below</i>	5.9 g/tonne PVC	5.2 g/tonne PVC
Average in-plant VCM concentration	41 ppb	45 ppb	41 ppb
Losses of containment of VCM	No incidents	No incidents	No incidents
Measurement of emissions	Improve methods of estimating losses of fugitive emissions to the environment for NPI reporting	See comments below	Continue to research and develop an accepted standardised methodology for calculating fugitive emissions
Energy Consumption	4.3 GJ/tonne PVC	4.4 GJ/tonne PVC	4.3 GJ/tonne PVC
Greenhouse Gas emissions	660 kg CO ₂ equiv /tonne PVC	687 kg CO ₂ equiv /tonne	652 kg CO ₂ equiv /tonne PVC
Water consumption	5.9 kL/tonne PVC	6.0 kL/tonne	5.9 kL/tonne PVC

VCM emissions to air and water

We monitor VCM emissions to air via

- EPA licensed stack discharge points;
- specific points at the plant's boundary; and
- ambient concentration levels within the plant.

Emissions of VCM to water are measured in the trade waste discharge. Any significant incident emissions are estimated and included in the total emissions figure reported above. There were no such VCM incidents in the period under review.

In the past, we have reported total emissions of VCM to the environment as a single figure and in our 2000-01 report, we set an emission target for VCM of 10g/tonne of PVC produced. This total comprised emissions from licensed discharge points ('point sources'), emissions to water and 'fugitive' losses from equipment leaks.

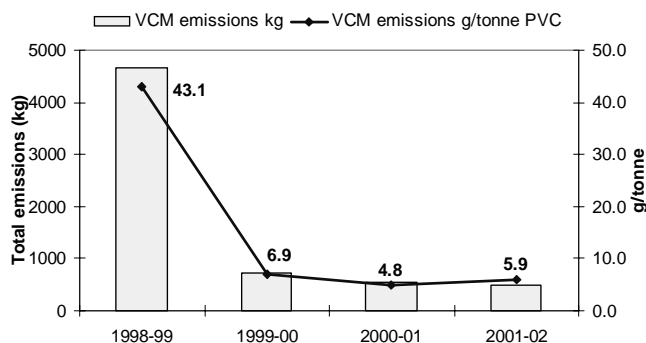
Calculation of the total figure has been useful for comparison of performance against past years. However, a review of the method used to calculate this figure has raised concern regarding the validity of deriving the actual weight (kilograms) of VCM for

Table 2.

1. Important note: Fugitive emissions, residual VCM and point source emissions are being reported separately. See below.

2. The conversion factors for calculating total greenhouse gas emissions were revised at end 2001. Our previously reported target was 625 kg/tonne.

Chart 3: VCM Point Source Emissions



equipment leaks from ambient concentration readings (parts per million) in surrounding air.

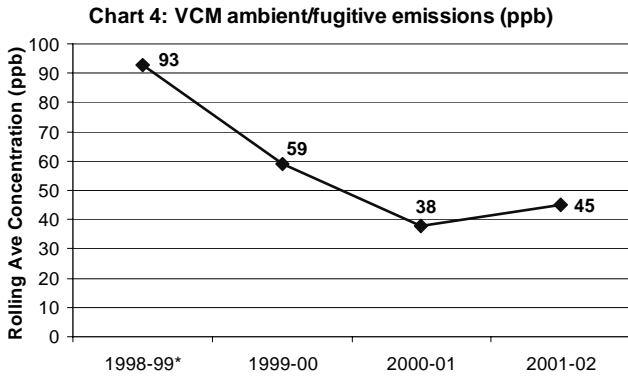
Accordingly, Australian Vinyls has decided to report the concentration of fugitive emissions separately as a concentration, until a more reliable method is found for conversion to the weight of VCM emitted.

The revised targets quoted above reflect the contribution from fugitive emissions implied in our original target for total emissions of 10g/tonne PVC produced (that is, while the calculation has changed, the combined targets remains unchanged).

Previous years' calculations of total VCM emissions have been adjusted to remove the fugitive emissions (Chart 3). Previous years' VCM ambient concentration data, based on measurements taken within the plant, have been extracted to show an historical trend in fugitive emissions (Chart 4).

Operational Energy Consumption

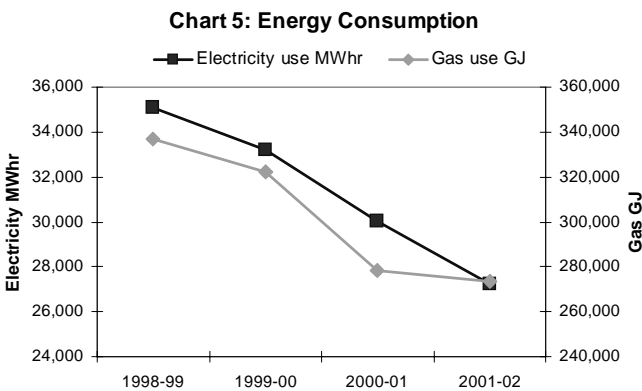
Our energy use is all indirect energy i.e. generated and purchased from major suppliers in the Victorian energy market. Our energy consumption figures do not include transportation of raw materials to our



* Average concentration for 1998-99 is based on data available only for May to September 1999.

plant nor that of product leaving the site.

2001-02 is the fourth year of lower electricity and gas consumption in absolute terms (see Chart 5). Our total energy consumption has been reduced by nearly 20% over 1998-99 levels. In relative terms based on a tonne of PVC production, performance in



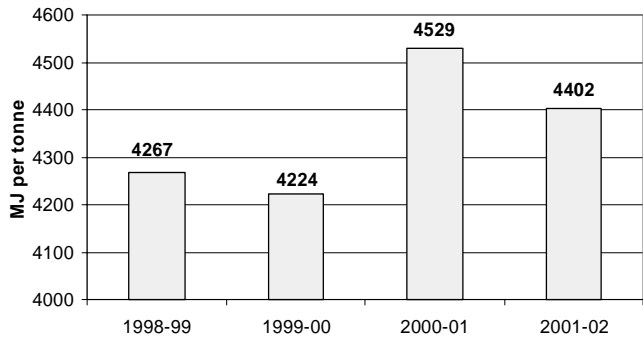
the nine month period was better than 2000-01 but remains higher than earlier years as a consequence of relatively low production (see Chart 6).

Reductions have come mostly from correcting poor practices, replacing older silo equipment with a more efficient unit, and educating our people on energy conservation. Future reductions may be achieved through lowering cooling tower operating temperatures and installing more efficient lighting.

Reducing natural gas consumption has mainly been achieved through maximising boiler efficiency and improved process control particularly around stripper operation. In future, it will come from eliminating leaks from the steam supply system.

Current energy consumption is below the threshold required to justify capital investment in cogeneration

Chart 6: Total energy per tonne production



of electricity and steam for the plant. The feasibility of cogeneration may be explored, however, with any planned plant expansion in future.

Laverton has adopted the following targets for reducing energy consumption, based on budgeted production levels:

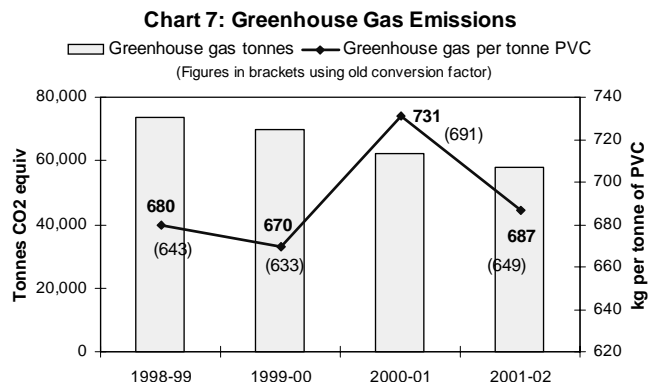
- electricity : < 305 kWh/tonne by 30 June 2003
- gas: < 3.08 GJ/tonne PVC by 30 June 2003

Greenhouse Gas Emissions

The target for our Greenhouse Challenge commitment was to reduce our usage of natural gas and electricity by 25% and 12% respectively by 2003 over 1998 levels. This means reaching a level of 652 kg CO₂-equivalent per tonne of PVC produced.

The Greenhouse Office adjusted the emission conversion factors for Victorian gas and electricity at the end of 2001 to better reflect equivalent emissions.

The greenhouse gas emissions reported above include contributions from consumption of electricity, gas and an allowance for VCM emissions based on a factor provided by the Australian Greenhouse Office.



Based on the latest factors from the AGO, Australian Vinyls' 2001-02 target was adjusted from 625kg of CO₂-e per tonne of PVC to 660 kg. Calculations of actual emissions for the reporting period and previous years have been increased accordingly.

Reduction has been achieved in greenhouse gas emissions in absolute terms. We fell short, however,

of reaching our target of 660 kg per tonne of PVC produced. The actual result was 687 kg/tonne (see chart 7).

Our greenhouse gas emissions do not take into account transportation of raw materials to our plant, nor transportation of product offsite.

X16

The Laverton Safety Case identified the potential in a "worst case" scenario for harmful levels of X16 vapour from an untreated spill to impact the residential areas. We are enhancing the training of our people and equipment for handling X16 and leak and spill response.

During the reporting period, there were two elevated X16 results in our stack monitoring relating to the X16 booth. They were caused by leaks during drum unloading. Replacement of the drum pump and improvements to unloading procedures have minimised the risk of recurrences.

For more information on our Safety Case, see www.av.com.au/envroper/impacts.html

Water

Major uses of water are for suspension of PVC during the reaction process, generation of steam in the boilers and as cooling water in cooling towers.

This is the fourth year of improvement in water consumption by the plant. Consumption has been reduced 30% in absolute terms over 1998-99 levels and on a per tonne production basis, consumption has been reduced by 10% over the same period (see Chart 8).

Reductions were achieved this year by better housekeeping following training in water conservation awareness. A project scheduled for completion in March 2003, has the potential to reduce water consumption by 80,000 kL per year in the incinerator scrubber.

Recycling of water.

The trials in water recycling at Laverton were limited this year. One seven day trial was completed and reduced water consumption by 2,350 kilolitres, but it

is not feasible to maintain this recycling. Effective water recycling depends on identifying processes which would not require significant consumption of energy or treatment chemicals as a result of the water recycling.

Studies have identified the recycling of centrate from the dryer centrifuges as a potential, cost effective and resource efficient option for water recycling. This is now under investigation.

Trade Waste Discharge

Trade waste discharge has been reduced by 10% over 1998-99 levels to 4.92 kL/tonne PVC.

Australian Vinyls is committed to meeting its obligations under its Trade Waste Agreement (TWA) with City West Water. All effluent monitoring results for the reporting period were at or below TWA limits.

Laverton will conduct a waste water audit in conjunction with City West Water by the end of 2002. The audit will identify water conservation opportunities and effluent quality improvements that can be made.

Emissions to Stormwater

There have been no recorded incidents resulting in contamination of water in the Laverton Creek channel since the plant began operations in 1979. Measures are in place to contain leaks and spills at the plant to minimise the risk of stormwater contamination. Such measures include bunding, discharging to effluent treatment plant and use of settling ponds.

Ozone depleting substances.

There was no consumption of ozone depleting substances by the plant during the reporting period.

Transportation

There were two minor transport incidents during the reporting period. The first involved a break in a wire at Terminals' loading station for which corrective action was taken. The second related to overheating of a truck's wheel bearing during transit, which has the potential to cause a tyre fire. Measures were taken to cool the wheel upon arrival at the Laverton plant and driver practices for this and similar events were reviewed.

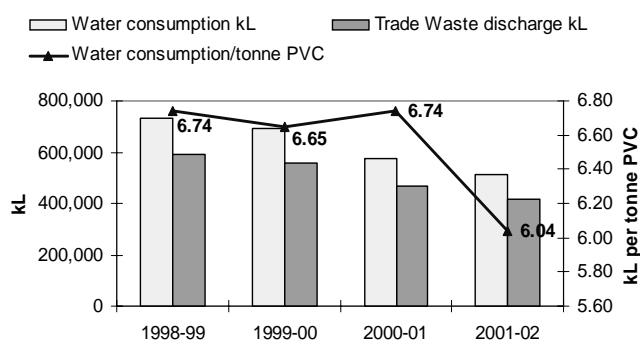
VCM leak checks are performed on each operating tanker on a daily basis at the Laverton plant.

We will explore the inclusion of transportation in our energy and greenhouse gas measurements from the beginning of the next Greenhouse Challenge period commencing 2004.

Waste

Australian Vinyls recognises community expectations to reduce the volume of hazardous wastes being

Chart 8: Water Use and Effluent Discharge



sent to landfill in Victoria. The main hazardous waste (called Prescribed Waste in the Victorian EPA guidelines) from the Laverton site is paper packaging with low residual levels of contaminants. This presents a low to very low environmental hazard. Under the plant's draft EIP II (see below), Australian Vinyls will explore re-use/recycling opportunities for waste streams currently destined for secure landfills by 30 June 2003 with a target of reducing total quantities sent to landfill by 15%.

We will also investigate options for purchasing drummed materials in bulk to reduce the number of drums requiring treatment/recycling.

Table 3: Waste Management			
Category	1999-00	2000-01	2001-02 (nine months)
Prescribed Waste			
Liquids disposed	200 litres	0	0
Liquids diverted	5,440 litres	16,940 litres	3,100 litres
Liquids stored	0	0	70 kg
Solids disposed	267 m ³	245 m ³ plus 1 tonne	8 m ³ plus 12.2 tonnes
Solids diverted	4.1 tonnes	6.7 tonnes	5.5 tonnes
Non Prescribed Waste			
Solids disposed	-	915 m ³ plus 1.5 tonnes	705 m ³
Solids diverted	25 kg	0	0

SH&E Management

Management policies.

SH&E issues are given a high priority in the conduct and management of our business. The Laverton plant is registered as a Major Hazard Facility under Victorian regulations (see below).

In addition to the Major Hazard Regulations, our SH&E management is guided by other regulatory requirements, our Environmental Management Plan lodged with the State EPA, our Environment Improvement Plan and our SH&E Policy.

Environment Improvement Plan

The Laverton plant first issued an Environment Improvement Plan (EIP) in August 2000. The EIP was prepared in consultation with members of the local community and representatives from the

Victorian EPA, Victorian Workcover Authority and City West Water. The EIP reviews the environmental aspects of our operations and contains a series of actions over a three year timeframe. Implementation of the EIP enhances the plant's environmental performance.

During the reporting period, the process to review and update the EIP commenced, again in consultation with key stakeholders. EIP II will be finalised by early 2003.

Safety Case

The process of registration under Victoria's OH&S (Major Hazards Facilities) Regulations 2000, required the Laverton plant to complete a Safety Case which identifies potential hazards at the plant and documents the adequacy of our control of risks and the plant's emergency response plan. The Safety Case was submitted in December 2001 and our MHF licence was issued in June 2002. More detail about the Safety Case can be found on our website at www.av.com.au/envroper/impacts.html

Permit to Work

The Safety Case identified the company's reliance on our Permit to Work procedures as a critical safety measure. As a result, we had the system reviewed by external experts and compared to a number of existing standards. A revised Permit to Work system was implemented in April 2002 adopting best practice standards.

Critical Events

Australian Vinyls has adopted a measure called "Critical Events" that provides feedback on its monitoring programs, procedural controls and critical equipment that prevent major incidents. Reporting of Critical Events will begin in next year's report.

Training

All shifts and other personnel such as Maintenance and Engineering at the plant undergo regular training sessions rostered into the shift program every five weeks. Training includes development of new skills and workplace practices and procedures, as well as refresher courses in areas such as first aid training,

Table 4: Training data		
	Operator (hours)	Support Staff (hours)
AV Training Days	1,248	424
Courses	132	936
TOTAL	1,380 hours Equiv. 197 training days	1,360 hours Equiv. 179 training days
Additional on-the-job learning/reassessment	1,440*	240*
*Estimates		

manual handling techniques and confined space work. In particular, during the reporting period, new training in the health risks and safe handling of X16 were conducted as part of our process of improving our management of the risks associated with the chemical.

A wide range of training in safety, health and the environment has been scheduled for 2002-03.

Regulatory Compliance

The EPA conducted one audit of the site during the reporting period. Although noting PVC powder on the ground at the time, the audit found no actions were required and there were no follow-up issues.

As part of our EPA Waste Licence we are required to submit an annual report to the EPA outlining our compliance with various licence conditions, such as point source emissions. Exceedences on these parameters are reported above. The company's investment in a new software system for providing continuous monitoring of emissions - a system we call Snoop - has provided operators with real-time assessment of our compliance status on point source emissions. Snoop has also made it easier to locate, and therefore manage and repair, process leaks.

Waste details are reported to the EPA in the plant's Waste Producer's Annual return, required under the EPA's prescribed waste regulations.

Australian Vinyls also submits a report to the National Pollutant Inventory. Thresholds were triggered for VCM, total volatile organic compounds (VOCs) and fuel consumption. Emissions are reported for each, as given in Table 5 overpage.

Legionella Regulations

Laverton plant has two cooling towers registered with the Building Control Commission for monitoring and control of Legionella. Risk assessments for both towers were completed in the reporting period. No reports to the Department of Human Services were required.

Cooling towers are needed to ensure effluent discharged to sewer meets trade waste licence conditions. We voluntarily shut down an effluent cooling tower during the period due to concerns about high bacteria levels. New cooling towers will be installed elsewhere in the system where bacteria levels are less likely to be a problem.

City West Water

City West Water visits the site generally every three weeks for testing of the trade waste discharge. There were no licence exceedences during the reporting period. The plant's Trade Waste Agreement was revised with a tightening of the limit for VCM. The new limit is ≤ 0.5 mg/litre 80% of the time and no more than 1.5 mg/litre at any time.

Worksafe Victoria

One improvement notice was issued to the company requiring re-assessment of the risks and control measures for X16 following a small release.

Worksafe representatives continue to participate in the plant's Environment Monitoring Team.

Community complaints

There were no complaints received by Australian Vinyls from the community.

Product Stewardship

Stakeholder consultation

Laverton's Environment Monitoring Team (EMT) consisting of representatives from the community, the EPA, WorkSafe Victoria and City West Water continued to meet bi-monthly through the reporting period. The EMT monitors progress against EIP commitments and reviews plant SH&E performance.

Product Stewardship initiative

Australian Vinyls has participated in the development of a voluntary, PVC industry Product Stewardship Commitment. The Commitment is being prepared by the Vinyl Council of Australia in consultation with Environment Australia and sets out public commitments for enhancing the environmental performance of the industry in Australia. The commitments relate to aspects of PVC's life cycle from manufacturing resin, through conversion to products, to end-of-life. The Commitment will be launched and signed by members of the industry, including Australian Vinyls, in late 2002.

Recycling

Australian Vinyls continues its involvement in the Vinyl Cycle bottle recycling program, through its Action Plan under the National Packaging Covenant. The recycling rate of PVC cordial bottles collected from kerbsides remains low at about 2% despite the collection rate being around 30%. Much of the PVC collected is not being sorted but is being sent as mixed plastic waste for recycling offshore.

Demand for recycled PVC in Australia is stronger than supply due to the use of recycle in PVC pipe fittings and vinyl floor coverings. Australian Vinyls has been consulting with major sorters, waste service suppliers and authorities to lift the sorting rate of PVC and improve the flow of PVC waste to the Australian recycler and end-users of recycle.

Flexible and rigid packaging constitutes about 7% of PVC consumption in Australia. Most PVC is used in long life products in the building and construction sector where little is yet available for recycling.

Table 5: Reported NPI emissions		
	1 Oct 2000 - 30 Sep 2001	1 Oct 2001 - 30 Jun 2002
COMBUSTION PRODUCTS	kg	kg
- Arsenic & compounds	0.02	0.02
- Beryllium & compounds	0.00	0.00
- Cadmium & compounds	0.13	0.12
- Carbon monoxide	11,044.35	10,545.73
- Chromium compounds	0.16	0.14
- Copper & compounds	0.10	0.09
- Fluoride compounds	0.00	
- Lead & compounds	0.06	0.05
- Mercury and compounds	0.03	0.03
- Nickel and compounds	0.24	0.22
- Oxides of nitrogen	11,600.99	10,825.85
- Particulate matter 10 micron	869.20	814.03
- Polychlorinated dioxins and furans	0.00	0.00
- Polycyclic aromatic hydrocarbons	0.08	0.08
- Sulphur Dioxide	62.49	74.28
VINYL CHLORIDE MONOMER	504.98	454.99
TOTAL VOCs	1,695.92	1,227.54

Reporting

The publication and distribution of our Community Report for the Laverton plant took place in February 2002 as planned. Australian Vinyls has ceased to be a member of the Altona Complex Neighbourhood Consultative Group (ACNCG) because the company no longer has a manufacturing operation in the Altona Chemical Complex. The Laverton plant will not therefore be producing a Community Report in future, but

will continue to produce the Safety, Health and Environment (SH&E) Report which will be made available to members of the community.

The SH&E Report for 2000-01, reporting on the year to 30 September 2001, was not published until June 2002 as a result of the change in ownership. The report was nevertheless

independently verified by Pricewaterhouse Coopers as in previous year's. Copies are available on our website at www.av.com.au/envroper/envrep.html.

As stated earlier in this report, the company has now switched to a 30 June year end and will be providing future SH&E Reports in the third quarter each year.

Commitments 2002-03

The following commitments are for the year to 30 June 2003. (Where relevant a production basis of 130,000 tonnes PVC has been assumed.)

Indicator	Commitment
VCM point source emissions and residual in product	Not to exceed 5.2 g/tonne PVC produced
Energy consumption	4.3 GJ/tonne
Greenhouse gas emissions	652 kg/tonne
Water consumption	5.9 kL/tonne
Health and safety: - Injury - VCM exposure	No recordable cases < 8 exposures > 1 ppm 0 exposures > 5 ppm
X16 emissions	No exposures, no spills
Waste management	Investigate options to eliminate or reduce waste streams destined for secure landfills
Product stewardship	Sign industry Product Stewardship Commitment
Post consumer recycling	Continue progress towards 25% recovery rate for PVC bottles by end 2003
SH&E management	Complete EIP II in Q1 2003 Complete SH&E report by 30 September 2003

For more information on Australian Vinyls, or its environmental performance, please visit our website at www.av.com.au or call us on 03 9368 4800.