



Australian Vinyls

Environment Improvement Plan III

2006-2009

Revision: 7
AVRESLV/SHE/GEN/PL403
October 2006

Australian Vinyls Corporation Pty Ltd
ABN No 15 078 558 595

Preface

Australian Vinyls has prepared and issued this Environment Improvement Plan in consultation with representatives of the local community and statutory authorities, it summarizes agreed actions to reduce the environmental impact of the operations performed at the company's Laverton site.

This Environment Improvement Plan follows on from and replaces Australian Vinyls Laverton Plant Environment Improvement Plan 2002-2005.

The plan is supported by a Waste Discharge licence issued by the Victorian Environment Protection Authority (EPA) and a trade waste agreement between Australian Vinyls and City West Water that specify limits and monitoring requirements for discharges from the site to the environment and the sewer system respectively.

The measures Australian Vinyls has put in place to meet obligations detailed in the EPA Waste Discharge licence and the EPA Protocol for Environmental Management (Minimum Control Requirements for Stationary Sources) are summarized in an Environment Management Plan prepared and approved by the EPA in accordance with the EPA Waste Discharge licence.

Australian Vinyls has also entered into a voluntary industry wide commitment, developed by the Vinyl Council of Australia in conjunction with Environment Australia, to manage product risks throughout the Vinyl lifecycle (refer to the Vinyl Council of Australia web site for more information on the Product Stewardship Project- www.vinyl.org.au).

Australian Vinyls publishes detailed results regarding its safety, occupational health and environmental performance in Sustainability reports that can be accessed from its web site (www.av.com.au) or obtained directly from the company.

Executive Summary

Australian Vinyls is committed to ensuring that its Laverton operations meet the highest possible standards. As such, we ensure that we both reduce and understand our environmental footprint. We have a strong culture of environmental awareness and protection and have, over a number of years met, if not exceeded, environmental expectations. With this EIP we hope to build upon the work and investment that has already been made to further enhance our practices.

This Laverton Plant Environment Improvement Plan (EIP) details the identified environmental impacts from Australian Vinyls Laverton site as well as specific improvement targets and actions for each area of impact. The scope of this plan includes all operations conducted at Laverton.

The plan details actions and targets for the period July 2006 to June 2009 and builds on improvements already achieved through the previous 2002-2005 Laverton Plant Environment Improvement Plan (EIP II).

This EIP was developed and will be implemented through a process of open consultation, education and sharing of opinion and experience with the Australian Vinyls Environmental Monitoring Team (EMT). The EMT includes senior line management and support staff, members of the Altona / Laverton Community and representatives from Wyndham City Council, the Environment Protection Authority, WorkSafe and City West Water.

The EMT will meet regularly to review environmental performance of the Laverton site and the progress of actions detailed in the plan.

The specific improvement actions and target implementation times identified in this EIP are summarized below.

Table of Actions

Section	Action No.	Action	Date	
1. Resource Conservation	1.1	In conjunction with City West Water develop and deliver a training program on water conservation complemented by installation of water conservation signage on taps. The program will cover both the work and home environment.	June 2007	
	1.2	Review slurry tank agitator control for empty tanks and implement actions once the new Distributed Control System (DCS) is installed and operable in the plant.	June 2009	
	1.3	Provide training to Engineering Project Managers (including Reliability personnel) regarding the selection and purchase of energy efficient equipment within the established project system.	June 2007	
	1.4	Develop an employee awareness package regarding turning off heaters, lights and other electrical items when not required. Though this may not save substantial amounts of energy it will promote energy efficient behaviours.	June 2007	
	1.5	Investigate, and where appropriate, install automated lighting controls in the services area of the plant.	December 2007	
	1.6	Upgrade boiler controls to reduce the amount of natural gas used in firing.	December 2007	
	1.7	Replace the steam traps in the STR1 fluidizing air heaters.	December 2007	
	1.8	Investigate options for Carbon offset for the vehicle fleet, such as tree planting, Greenfleet program etc and implement as appropriate.	June 2008	

2. Air Emissions	2.1	Investigate a means to minimise the VCM fugitive emissions from the Gas Holder. This could reduce the VCM emissions by up to 1.0 tonnes per annum.	June 2007	
	2.2	Investigate redesign of the STR2 dryer primary screen flow bin area to prevent overfilling. This could reduce loss of PVC by 20 tonnes annually.	June 2009	
	2.3	Improve the loading control system, reducing PVC loss by 20 tpa.	June 2006 for first silo, and June 2008 for the remaining silos	
	2.4	Implement X16 drum decontamination within the booth, including disposal of caustic solution to treatment facility.	December 2007	
3. Waste Minimisation	3.1	Minimise the amount of solid prescribed Industrial waste going to landfill.	July 2007	
	3.2	Review the existing stormwater management plan.	March 2007	
	3.3	Implement a suitable alternative path for disposing Organic Peroxide cardboard boxes to Prescribed Waste Landfill.	December 2006	
4. Corporate Social Responsibility	4.1	Develop an Annual Award Program for Sustainability for the employees and their families. This could be for a home or work initiative and would be judged by a panel from the EMT.	Launch October 2007, first Award December 2007	
	4.2	Encourage an Employee involvement program as part of our commitment to Western Choices.	December 2006	
5. Community Engagement	5.1	Develop a program for work experience students with an emphasis on Environmental Management at the Laverton site. Participation in the program will require engagement with the EMT.	February 2007	
	5.2	Diversify the membership of the EMT by inviting a representative from appropriate local area NGOs to join.	October 2007	

	5.3	Involve a member of the EMT in the review of the Laverton Safety Case.	May 2006	
	5.4	Produce a summary (one page) Corporate Sustainability report on the web page and advertise it locally.	March 2007	
6. Product Stewardship	6.1	Develop a section to be added to the Corporate Sustainability report that includes Greenhouse gas emission for our transportation use.	June 2007	
7. Visual Amenity		No actions this EIP		
8. Incident Preparedness	8.1	Provide briefings to Community stakeholders about the revision of the Safety Case, possibly in the form of a community meeting, advertised via letter drop.	March 2007	
	8.2	Perform gap analysis of internal procedures and processes to ISO14000 series (Environmental Management Systems).	December 2008	
	8.3	Determine further action where appropriate on the gaps identified.	March 2009	
9. Incident Response	9.1	Develop a process to inform the community and relevant local medical services of an incident when necessary.	August 2007	
	9.2	Install a sign on the fences with a 24 hour contact number for the community to report any unusual or illegal activities on AV land.	March 2007	
	9.3	Upgrade the CCTV system.	December 2006	

For any questions, comments or concerns, the main site contact for the Laverton site is either the General Manager Manufacturing or Risk Manager. Their contact details are listed below:

<p>Michelle Ash General Manager Manufacturing Ph: 9368 4838 Fax: 9368 4877 Email: michelle.ash@av.com.au</p>	<p>Trish Kerin Risk Manager Ph: 9368 4832 Fax: 9368 4888 Email: trish.kerin@av.com.au</p>
--	--

Table of Contents

	Introduction to the EIP	1
1	Resource Conservation	4
2	Air Emissions	8
3	Waste Minimisation	11
4	Corporate Social Responsibility	13
5	Community Engagement	15
6	Product Stewardship	17
7	Visual Amenity	18
8	Incident Preparedness	19
9	Incident Response	21
	Glossary	23
	Appendix 1 – Status of EIP II	26

Australian Vinyls Commitment

Australian Vinyls aims to manage all its activities with respect and care for people and the environment. We believe all work related injury and illness and work related safety and environmental incidents are preventable.

Australian Vinyls is committed to open communication of its safety, health and environmental performance. We believe consultation with the community, the regulatory authorities and our employees will contribute to our plans and improve our performance.

These values and commitments provide the framework for our Environment Improvement Plan (EIP). The EIP details the processes we will use to continually improve our environmental performance and eliminate unacceptable impacts from our operations on the community, our employees and the environment.

The consultative process used to develop this EIP will continue. The community, regulatory authorities and our employees will have a direct role in reviewing and assessing our progress and, most importantly, in working with the company to address key environmental issues.

I would like to acknowledge the help and support that our community members give us in developing, improving and monitoring our activities. We would also like to thank our employees for all of their hard work in all areas but especially in sustainability. It is the contributions of our stakeholders that have made our Sustainability and Environmental Awareness culture so strong.

I commit Australian Vinyls to the environment improvement program described in this document.

Murray Winstanley
Chief Executive Officer



AUSTRALIAN VINYLs

SAFETY HEALTH AND ENVIRONMENT POLICY

Australian Vinyls will manage all its activities with respect and care for people and the environment. We believe work related injury and illness and work related safety and environmental incidents are preventable.

Australian Vinyls supports the chemical industry's Responsible Care program and will conduct its business in a way which benefits society without compromising the rights and needs of future generations. In particular:

- We will consult the community and other stakeholders regarding our safety, health and environmental goals and keep them informed of our performance in ways that facilitate understanding and address their concerns;
- We will identify, understand and reduce the SH&E risks associated with our activities as far as reasonably practicable and in all cases to levels acceptable to the community;
- We will control operations at the Laverton plant, a registered Major Hazard Facility (MHF) to manage employee, community and property risk;
- We will require every employee and contractor engaged by us to comply with relevant legislation and to be committed to this Policy.
- We will use and sell only those products for which safe manufacturing, transportation, storage, processing and disposal techniques are available.
- We will provide appropriate information and training on the safe use and disposal of our products.
- We will encourage employee initiatives that contribute to improved safety, health and environment performance at work and in the community.
- We will set challenging targets and measure progress to ensure continual improvement of our safety, health and environment performance.
- We will recognise the principle of sustainable development in developing and improving our products and processes.

Implementation of this policy will be achieved by compliance with and continual improvement of the Company's Business Management System.

AV/SHE/GEN/PY101 Rev 2

Description of Operation and Operating Environment

Process

The Laverton plant produces polyvinyl chloride (PVC) powder for use in PVC pipes, cable insulation, hoses and other plastic items produced in Australia. PVC is produced through the reaction of vinyl chloride monomer (VCM) and relatively small quantities of catalysts and other additives, suspended in water.

VCM is a carcinogenic, flammable gas at room temperature and pressure. VCM is brought onto site by road tankers and is stored in pressurized VCM Storage Tanks (**Day Tanks**).

The reaction to produce PVC takes place in large, stirred vessels called Autoclaves. The Laverton plant has two separate production streams; Stream 1 and Stream 2. The same process occurs in each stream, the main difference being that Stream 1 has four 40m³ Autoclaves and Stream 2 has two 100m³ Autoclaves.

Each batch of PVC begins with the application of **build-up suppressant** on the walls of the **autoclave** to prevent growth and accumulation of PVC on the walls. Cold water (20 - 25 degrees C), **catalyst**, small quantities of other additives and VCM from the Day Tanks are then pumped into the autoclave.

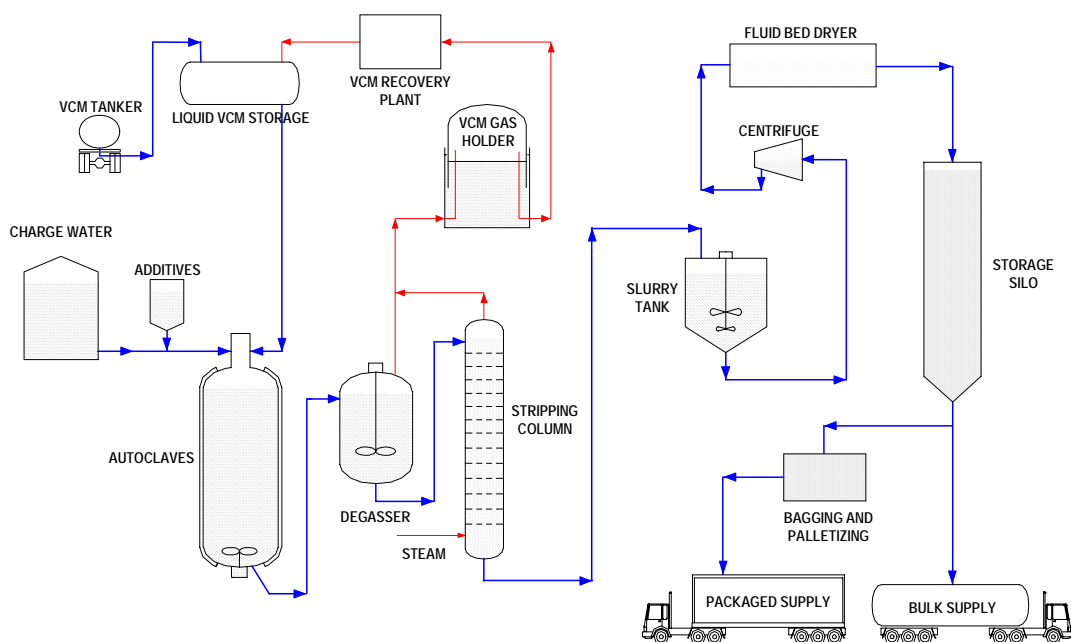
The mixture is stirred and heated by hot water, circulating through **jackets** inside the walls of the autoclave. Once the reaction temperature has been reached, the hot water supply to the jackets ceases and the materials begin to react. The reaction is **exothermic**, meaning that it gives off heat during the reaction. To absorb this heat, cooling water is then circulated through the jackets. Once the reaction is completed, slurry of PVC powder in water has formed in the autoclaves. The slurry is then discharged to a **Degasser**.

The Degasser is a large holding vessel that allows VCM vapour still present in the slurry to be vented and separated. The aim is to remove the bulk of unreacted VCM and reduce the pressure of the reaction mix. Vented VCM vapour is sent to the **Gas Holder**, a large water sealed tank that receives recovered VCM from various points in the process. From the Gas Holder, recovered VCM is separated from the water, liquefied and sent to **Recovered VCM Tanks** for reuse. For every batch of PVC produced, approximately 15% of the VCM charged to the Autoclave is recovered for re-use in subsequent batches.

From the Degasser, the PVC slurry is sent to the **Stripping Column** to reduce the remaining VCM content to meet product specifications and in all cases to below the 100 ppm requirement specified by the EPA Minimum Control Requirements for Stationary Sources. The PVC slurry is injected into the top of the Stripping Column and falls down to the bottom, while steam is injected into the bottom of the Column and contacts the slurry on its way up. The VCM-laden steam is captured in the Gas Holder and then re-liquefied and sent to the **Recovered VCM Tanks** for reuse.

After stripping the PVC slurry is held in **Slurry Tanks**. From the Slurry Tanks, the PVC slurry is sent to a **Centrifuge**, a rotating sieve that separates most of the water from the PVC. The separated water (called “**centrate**”) is sent to the **Effluent Treatment System** for neutralization and cooling prior to disposal to the sewer. The PVC “wet cake” from the centrifuge is sent to a **Dryer**.

The Dryer removes the residual water from the PVC powder. From there, the final PVC product is sent to Silos, for packaging or direct loading into road tankers.

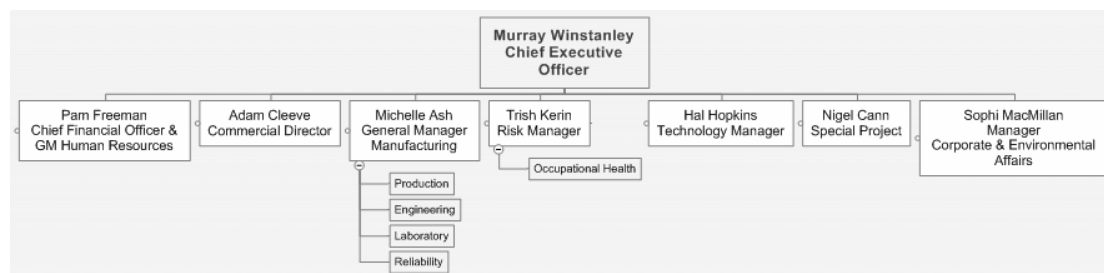


Substances on Site

Australian Vinyls Laverton plant is a licenced Major Hazard Facility. As such it has several substances on site which are listed as Schedule 1 Materials in the Occupational Health and Safety (Major Hazardous Facility) Regulations 2000. The main hazardous substances used at the plant are Vinyl Chloride Monomer, Ethyl Chloroformate, Natural Gas and Diesel.

Site Management Arrangements

Organisation Chart



Contact Details

For any questions, comments or concerns, the main site contact for the Laverton site is either the General Manager Manufacturing or Risk Manager. Their contact details are listed below:

Michelle Ash

General Manager Manufacturing

Ph: 9368 4838

Fax: 9368 4877

Email: michelle.ash@av.com.au

Trish Kerin

Risk Manager

Ph: 9368 4832

Fax: 9368 4888

Email: trish.kerin@av.com.au

Introduction to the EIP

The Australian Vinyls Laverton Plant Environment Improvement Plan (EIP) is the product of consultation between community, regulatory authorities and industry. The consultative agreement reflects a general desire *to do better*,

- ◆ a desire on the part of Australian Vinyls to improve its environmental performance and community relations;
- ◆ a desire on the part of regulatory bodies to support both the community and industry to improve public amenity and reduce the risk from industry to the community; and
- ◆ a desire on the part of the community to take an active role in securing the well being of their local environment and families.

Australian Vinyls is committed to continual improvement of its environmental performance and to establishing and maintaining the organization, plant features and systems required to manage its operations safely and prevent major incidents.

This plan details specific short and longer term actions designed to significantly reduce Australian Vinyls emissions to the environment, consumption of resources and other adverse environmental impacts.

Australian Vinyls continues to actively operate an Environmental Monitoring Team (EMT) to monitor its environmental performance and provide input from a range of stakeholders into its environmental targets and improvement plans. The EMT works as a partnership between Australian Vinyls senior line management and support staff, dedicated members of the surrounding community and representatives from Wyndham City Council, the Environment Protection Authority Victoria and City West Water, with an observational role being filled by WorkSafe Victoria.

The Environmental Monitoring Team is:

[Australian Vinyls Corporation Pty Ltd](#)

Trish Kerin	-	Risk Manager
Michelle Ash	-	General Manager Manufacturing
Jim Minto	-	Operations Co-ordinator
Peter Dolphin	-	Reliability Manager
Anne Briggs	-	HSR

[EPA](#)

Phonse Everard	-	Environment Protection Officer
----------------	---	--------------------------------

[City West Water](#)

Joe Messina	-	Client Manager
Nigel Corby	-	Waste Integration

[Wyndham City Council](#)

Emma Taylor	-	Senior Environmental Health Officer
-------------	---	-------------------------------------

Community

Peter Wright
Gloria Wright
Colleen Gates
John Elso
Peter Undy
Paul Cassar
Valerie Gemmell
Bruce Cook

As an observer we have:

WorkSafe Victoria

Bob Gregorovich - Analyst

Members of the EMT (photo)



Absent from photo:

Community:

Bruce Cook
Peter Undy

City West Water:

Joe Messina
Nigel Corby

Wyndham City Council:

Emma Taylor

This EIP is the result of a consultative process between Australian Vinyls and the EMT. Input from the EMT was used to finalize and prioritize the actions included in this plan.

Progress on action items and Australian Vinyls environmental performance is reviewed at regular EMT meetings. The review ensures Australian Vinyls' improvement actions adopt the best approach practicable, given current and future operating conditions. The review process also considers variations in community attitudes and emerging technologies in the worldwide Vinyl industry and other relevant industries.

Progress in implementing the EIP actions and Australian Vinyls environmental performance is also reported to the community through Sustainability Reports, distributed to local households and businesses, statutory authorities and other stakeholders, and posted on the Australian Vinyls web site.

If during the life of this EIP the EMT agree that an EIP action needs to be amended or further action is required, the revised action(s) are documented on an EIP Action Amendment Proposal form (refer Appendix 2) and the form is circulated to all signatories for approval.

Signatories to the EIP

Signed on behalf of the authorities and representatives of the Environmental Monitoring Team.

Peter Wright
Community Representative

Scott Maloney
Manager West Metropolitan Region
EPA Victoria

Gloria Wright
Community Representative

Michelle Ash
General Manager Manufacturing
Australian Vinyls Corporation Pty Ltd

John Elso
Community Representative

Trish Kerin
Risk Manager
Australian Vinyls Corporation Pty Ltd

Valerie Gemmell
Community Representative

Anne Briggs
Health & Safety Representative
Australian Vinyls Corporation Pty Ltd

Paul Cassar
Community Representative

Emma Taylor
Senior Environmental Health Officer
Wyndham City Council

Colleen Gates
Community Representative

Geoff Gardiner
General Manager Service Sustainability
City West Water

1. Resource Conservation

Objective

To minimise the use of Natural Resources in the production of PVC.

Background

Resource conservation is a key focus for the operation of the AV plant. This area covers the use of Electricity, Natural Gas, LPG, Diesel and Potable Water.

Greenhouse gas generation arises from the use of natural gas in the production process; electricity in the production process and ancillary buildings; LPG in forklifts; and diesel in one forklift, the fire pumps and the emergency generators.

The vast majority of water used at Laverton is in the production process as our technology requires the use of water as a suspension agent in the reaction phase.

Previous reductions have included a reduction in natural gas usage by fitting boiler economisers and improved operating practices. Electricity consumption has been reduced by installing variable speed motors and various other efficiencies. There have been a number of water recycling and reduction projects, such as the incinerator quench water recycling project to reduce the amount of potable water consumed.

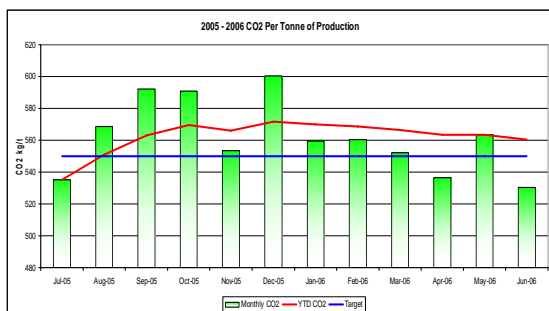
Australian Vinyls was awarded an Outstanding Achievement in Greenhouse Gas Abatement Award by the National Greenhouse office as part of the Greenhouse Challenge Plus Awards in September 2005.

Total CO₂ abatement estimated for all the actions over the life of the EIP is approximately 1260 Tonnes annually. This builds on the 22% reduction achieved since 2000-01.

Targets

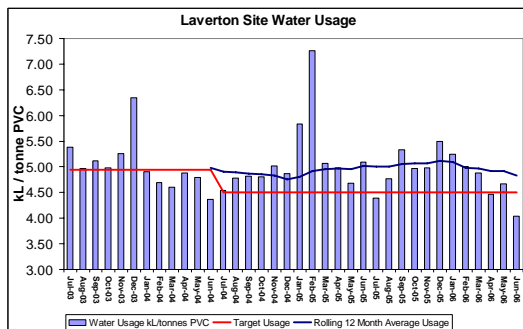
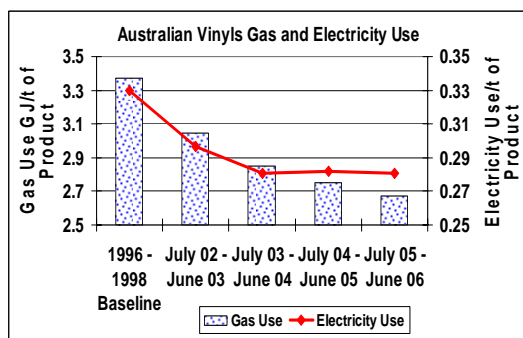
	Energy GJ/Tonne	Greenhouse Gas tonne CO ₂ e/Tonne	Water kL/Tonne
Actual 2005/6	3.66	0.560	4.83
Target 2006/7	3.60	0.550	4.80
Target 2007/8	3.60	0.550	4.75
Target 2008/9	3.60	0.550	4.75

Progress against targets is reported to the Environmental Monitoring Team at each meeting.



Ongoing Commitments

1. Continued participation in the Greenhouse Challenge Plus Program.
 2. Annual Greenhouse Energy Audits to identify opportunities for energy reduction as part of the State Environment Protection Policy requirements.
- Progress of the ongoing commitments is reported to the Environmental Monitoring Team annually and contained in the Annual Corporate Sustainability Report.



Reduction Actions

Water Conservation

The actions of employees can directly impact the use of resources. It is important that employees understand not only the impact of resource usage at work but also at home, to maximise outcomes for the environment.

Water consumption at Laverton has reduced from 6.7 kL/tonne of PVC in 1998-99 to 4.8 kL/tonne in 2005-06, a 28% reduction. While we continue to investigate ways to further reduce our consumption we are unaware of current technology which can be economically deployed. We will continue to emphasise conservation behaviours while we look for appropriate technologies to further reduce consumption.

Action 1.1: In conjunction with City West Water develop and deliver a training program on water conservation complemented by installation of water conservation signage on taps. The program will cover both the work and home environment.

By: June 07

Electricity Reduction

The agitator control on the PVC slurry tanks currently does not allow for an agitator to be switched off when a tank is empty. Isolation of agitators could reduce energy consumption by approximately 300 MWh or 1,080 GJ annually.

Action 1.2: Review slurry tank agitator control for empty tanks and implement actions once the new Distributed Control System (DCS) is installed and operable in the plant.

By: June 2009

Engineering Project Managers specify items to be purchased for plant upgrades or project work. Awareness of energy efficient alternative could improve this process and lead to reductions in energy usage. Energy efficient behaviour is important from a community perspective to not only reduce energy usage in the workplace, but also in the home.

Action 1.3: Provide training to Engineering Project Managers (including Reliability personnel) regarding the selection and purchase of energy efficient equipment within the established project system.

By: June 07

Action 1.4: Develop an employee awareness package regarding turning off heaters, lights and other electrical items when not required. Though this may not save substantial amounts of energy it will promote energy efficient behaviours.

By: June 07

Action 1.5: Investigate, and where appropriate, install automated lighting controls in the services area of the plant.

By: By December 2007

Natural Gas Reduction

Oxygen control at the boiler burners contributes to optimal natural gas usage and provides more efficient and cleaner combustion. A new control system for boiler management could reduce natural gas usage by up to 11,200GJ and generate electricity reductions of up to 310MWh or 1116GJ annually.

Action 1.6: Upgrade boiler controls to reduce the amount of natural gas used in firing.

By: December 2007

Steam traps are required to remove condensate from the steam pipework. Depending on the efficiency of the steam traps, this may result in increased condensation and heat loss. Improving steam trap efficiency could save approximately 350 GJ annually.

Action 1.7: Replace the steam traps in the STR1 fluidizing air heaters.

By: December 2007

Carbon Dioxide Reduction

Australian Vinyls maintains a small vehicle fleet. Carbon offset for the vehicles may be an appropriate action to reduce the companies overall carbon use.

Action 1.8: Investigate options for Carbon offset for the vehicle fleet, such as tree planting, Green fleet program etc and implement as appropriate.

By: June 2008

2. Air Emissions

Objective

To minimise the emission of dusts and manage emissions of VCM while optimising energy usage.

Background

There are several areas of legislation and standards that govern air emissions. The Laverton site operates under the following regimes:

- National Environmental Protection Measure – Ambient Air Quality
- State Environment Protection Policy – Air Quality Management
- National Pollutant Inventory
- Victorian Environment Protection Authority Waste Discharge Licence

Compliance with these requirements has contributed to a comprehensive Air Emissions Program. This program involves both passive and active monitoring of Air Quality and involves detailed calculations of both point source (such as licenced discharge points) and fugitive emissions. These emissions are reported annually to the EPA and are in the annual Corporate Sustainability Report.

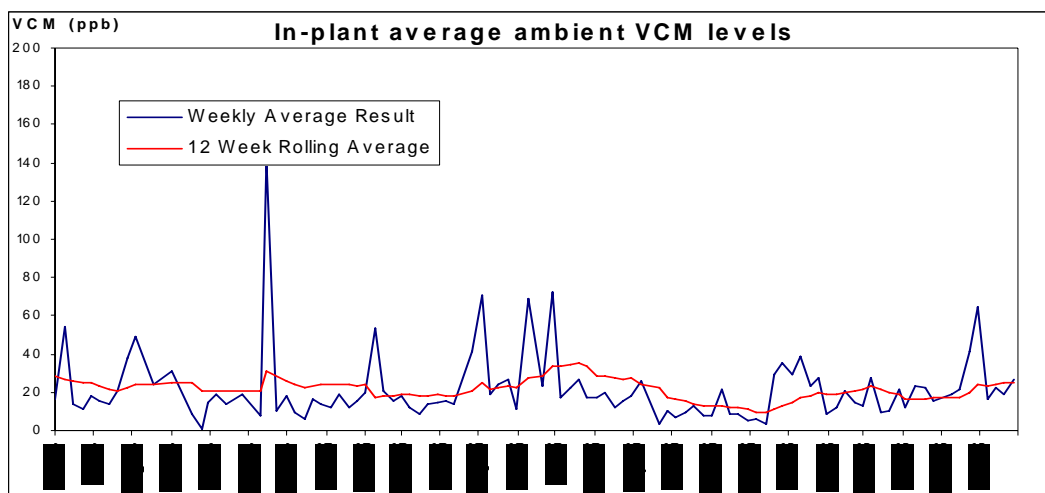
Targets

Maintain air emissions below the Licenced Discharge Limit					
Reaction	Dryer 1	Dryer 2	Incinerator	X16 Stack	Unlicenced Emissions
2.4 g/min	5.3 g/min	6.4 g/min	0.34 g/min	0.36 g/min	0
No instances of Legionella in the plant cooling towers.					
Ambient VCM on site less than 23 ppb (as measured by passive carbon tube detectors).					
Progress against targets will be reported to the Environmental Monitoring Team at each meeting.					

Ongoing Commitments

1. Conduct continuous atmospheric monitoring, consisting of SNOOP (active air testing), In Plant and Boundary Carbon Tubes (passive detection) and an extensive leak detection program.
2. Conduct annual Legionella Risk Management Audits.
3. Conduct noise meter survey at the boundary bi-annually.
4. Conduct Cooling Tower testing monthly for Legionella. This is in excess of legislative requirements and is undertaken to ensure we have complete control over the possible instance of Legionella in the cooling tower systems.

Progress of the ongoing commitments will be reported to the Environmental Monitoring Team annually and contained in the Annual Corporate Sustainability Report.



Emission Actions

Vinyl Chloride Monomer Emissions

The largest single source of fugitive emission of VCM is the Gas Holder rim seal. This is calculated annually based on level calculation and experimental data.

Action 2.1: Investigate a means to minimise the VCM fugitive emissions from the Gas Holder. This could reduce the VCM emissions by up to 1.0 tonnes per annum.

By: June 2007

Dust Emissions

Flow bins are used to store oversize PVC particles from the dryers. Vigilance is required to ensure the bins do not overflow. An early warning system, for example scales, could improve the process.

Action 2.2: Investigate redesign of the STR2 dryer primary screen flow bin area to prevent overflowing. This could reduce loss of PVC by 20 tonnes annually.

By: June 2009

The sequencing of valves on the silo loading gantries allows for some PVC dust to be present on the top of tankers and containers after they are filled. By modifying the valve sequence and improving the level detectors, deposit of PVC could be eliminated. It is estimated that 20 tonnes of PVC per year is lost in this manner.

Action 2.3: Improve the loading control system, reducing PVC loss by 20 tpa.

By: June 2006 for first silo and June 2008 for the remaining silos.

Actions Carried over from EIP II

There is currently no automatic in plant detection for ammonia emissions.

Ethyl Chloroformate (X16) Risk Reduction Actions

The X16 booth is a monitored and recorded atmosphere. It vents to the X16 Stack which is a licenced EPA discharge point. X16 is vented via this discharge point when X16 drums are decanted. Currently drum decontamination takes place initially inside the booth, followed by caustic treatment in another location. Complete drum decontamination in the X16 booth will reduce both the risk of a caustic spill and manual handling risk.

Action 2.4: Implement X16 drum decontamination within the booth, including disposal of caustic solution to treatment facility.

By: December 2007

VCM Risk Reduction

There is currently a procedural control to prevent overflowing of the degasser. (Overflowing of the degasser could lead to emissions.)

3. Waste Minimisation

Objective

Minimise waste going to landfill by focusing on waste reduction, reuse and recycling.

Background

There are several areas of legislation and standards that govern waste management. The Laverton site operates under the following regimes:

- Victorian Environment Protection Classification of Wastes
- City West Water Trade Waste Agreement

The EPA Classification process addresses solid wastes, while the CWW Trade Waste Agreement addresses liquid effluent from the process.

The main sources of waste at the Laverton site are liquid effluent (waste water from the process), solid packaging waste and general office waste. The solid packaging waste varies from steel drums, to plastic bags to cardboard boxes. Where possible these items are recycled rather than land filled. General office waste is recycled where applicable.

Targets

Manage the process to ensure waste parameters are below the Trade Waste Agreement.

Flow Tonnes/day	pH	Total Dissolved Solids kg/day	Suspended Solids mg/L	VCM ppm	Temperature deg C
1,800 max	6.0 – 10.0	1,100 max	10,000 max	Max 1.5, 80%<0.5	<38

5% reduction on Prescribed Industrial Waste to landfill

5% Reduction in general waste to landfill

Progress against targets will be reported annually in the Corporate Sustainability Report

Ongoing Commitments

1. Participate in Altona Chemical Complex Process Integration Study.
2. Actively participate in EPA, Industry, PACIA, Ai Group joint assessment of options to recycle paper/cardboard packaging.

Progress of ongoing commitments will be reported to the Environmental Monitoring Team annually and contained in the Annual Sustainability Report.

Waste Action

The plant occasionally produces a substance called rogue polymer. This substance is not a usable form of PVC and is currently disposed as a Prescribed Industrial Waste. Following the implementation of the Waste Categorisation Guidelines, this waste and others from the site need to be categorised prior to disposal.

Action 3.1: Minimise the amount of solid Prescribed Industrial waste going to landfill.

By: July 2007

Actions Carried over from EIP II

The site has four outlets discharging stormwater to Laverton Creek. One of these, the stormwater pond, has an isolation valve to prevent contaminated stormwater discharging to Laverton Creek. The other three outlets do not have isolation valves. Instead they have an inflatable bung which is used to block the discharge in the event of contamination of the drainage system (i.e. fire fighting water etc). Currently this bung is inserted in the drain when an incident occurs. To improve integrity it is proposed to operate with the bungs in place. A monitoring program will be implemented to ensure the bungs remain inflated. In the event of a substantial storm, the bungs could be removed to prevent flooding.

Action 3.2: Review the existing stormwater management plan

By: March 2007

Solid Organic Peroxides are currently delivered in plastic bags contained in boxes. These boxes are currently being disposed as Prescribed Industrial Waste. EIP II had the following action to resolve this waste stream: "Support establishment of a group involving the EPA and members from PACIA and/or the AIG Environment Working Group to investigate options to recycle paper / cardboard chemical product packaging." EIP III has a more specific action regarding the boxes.

Action 3.3: Implement a suitable alternative path for disposing Organic Peroxide cardboard boxes to Prescribed Waste Landfill.

By: December 2006

4. Corporate Social Responsibility

Objective

Build upon the values of the company to enhance economic, environmental and socio-economic outcomes.

Background

Corporate Social Responsibility for Australian Vinyls is about ensuring sustainable business growth for the company while creating environmental and socio-economic value in the community. This embodies the Plastics and Chemical Industry Association's (PACIA) Responsible Care Codes of Practice, in particular Environment Protection, Community Right to Know and Product Stewardship. Australian Vinyls is a member of PACIA and a signatory to the Responsible Care Public Commitments.

Targets

Manage the process to ensure waste parameters are below the Trade Waste Agreement

Our socio-economic measure, which is the total community benefit associated with our operations, was \$64.3M in the year ended 30 June 2006. We value our position as an Australian based manufacturing operation and our aim is to maintain and enhance that position in the long term.

Progress against targets will be reported annually in the Corporate Sustainability Report

Ongoing Commitments-

1. Report on progress of CSR integrated projects.
2. Inform EMT of status of PACIA Responsible Care Self Assessments as they are completed.
3. Maintain the plant Safety Case.

Progress of ongoing commitments will be reported to the Environmental Monitoring Team annually and contained in the Annual Corporate Sustainability Report.

Corporate Social Responsibility Actions

Encourage a focus on sustainable operation.

Action 4.1: Develop an Annual Award Program for Sustainability for the employees and their families. This could be for a home or work initiative and would be judged by a panel from the EMT.

By: Launch October 2007, first Award December 2007

Action 4:2 Encourage Employee involvement as part of our commitment to Western Choices.

By: December 2006

5. Community Engagement

Objective

Maintain an active program of engagement with the community.

Background

Community Engagement is a critical part of PACIA's Responsible Care program, as detailed in the Community Right To Know Code of Practice. AV supports the Responsible Care program and recognises active involvement is required to maintain community approval of our "licence to operate".

Targets

Zero Community Complaints attributable to our business activities.

Continued Community participation and input in the EMT, EIP based projects and the Safety Case.

Progress against targets will be reported annually in the Corporate Sustainability Report and to the EMT.

Ongoing Commitments

1. EMT will continue to meet on a regular scheduled basis.
2. Seek community feedback on AV's performance and reporting in meeting our obligations under the Responsible Care Program.
3. Annually report funding and sponsorship arrangements provided to the community.

Progress of ongoing commitments will be reported to the Environmental Monitoring Team annually and contained in the Annual Corporate Sustainability Report.

Community Engagement Actions

Introduce the perspective of secondary school students to the EMT.

Action 5.1: Develop a program for work experience students with an emphasis on Environmental Management at the Laverton site. Participation in the program will require engagement with the EMT.

By: February 2007

Different people bring different experiences to what they do. The current EMT consists of local community members and regulatory bodies. The addition of a Non Government Organisation (NGO) to the EMT may provide a fresh and enhanced perspective.

Action 5.2: Diversify the membership of the EMT by inviting a representative from appropriate local area NGOs to join.

By: October 2007

Communication with external stakeholders is important and can highlight matters otherwise missed by employees of the company. Such a process can enhance the quality of the Laverton Safety Case. A web site provides the forum to provide and update information to the general public.

Action 5.3: Involve a member of the EMT in the review of the Laverton Safety Case.

By: May 2006

Action 5.4: Produce a summary (one page) of the Corporate Sustainability Report on the web page and advertise it locally.

By: May 2007

6. Product Stewardship

Objective

Encourage the sustainable use of PVC by engaging all links in the PVC supply chain.

Background

Australian Vinyls believe that raw materials suppliers, product manufacturers, distributors and the consumer are joint stewards for safe and beneficial production, use and disposal of PVC products. Because of this we take an active role in leading Product Stewardship through the PVC supply chain.

Targets

All PVC produced at the Laverton Plant to contain less than 1ppm residual VCM.

VCM emissions from the production of PVC to be less than 50g/tonne of PVC produced (this is well below the European target of 100g/tonne).

Ongoing Commitments

1. AV will be an active and leading member of the Vinyl Council of Australia.
2. Through the VCA contribute to improved environmental outcomes for the PVC manufacturing and processing industry. Progress will be measured by a survey conducted by the VCA.
3. Continue progress towards a 50% recycling rate for PVC bottles.
4. Conduct regular audits of suppliers to improve safety and environmental impact along the supply chain.

Progress of the ongoing commitments will be reported to the Environmental Monitoring Team annually and Commitments 1 to 3 are contained in the Annual Corporate Sustainability Report.

Product Stewardship Actions –

AV currently ensures that it deals with suppliers of assured quality and integrity.

Action 6.1: Develop a section to be added to the Corporate Sustainability Report that includes Greenhouse gas emission for our transportation use.

By: June 2007

7. Visual Amenity

Objective

To minimise the visual impact of the Plant on the community and it's environment.

Background

The Australian Vinyls Laverton Plant is an integral part of the Laverton landscape. It is important to both AV and the community that this is not a negative impact.

Targets

Improve landscape impact from company owned property.

Ongoing Commitments

1. Ongoing annual weed management in AV's property, targeting Artichoke Thistle, Serrated Tussock and Paterson's Curse.
2. Ongoing maintenance of grass height in AV's property.
3. Maintenance of fences around AV's property.
4. Monitor and remove any rubbish dumped on AV's property.
5. Maintain gardens and grassed areas inside the site for enhanced visual amenity.

Progress of the ongoing commitments will be reported to the Environmental Monitoring Team annually and Commitments 1 to 3 are contained in the Annual Corporate Sustainability Report.

8. Incident Preparedness

Objective

Minimise the potential for incidents and their impact on personnel and community.

Background

Planning and preparation are vital links in preventing an incident occurring or escalating. This is achieved by various means, including plant maintenance and asset integrity programmes, training and plant operating standards.

Targets

In service emergency equipment operable 100% of the time.
100% of Job Cycle Checks relating to SHE critical procedures completed on schedule.
120 permit to work checks performed annually.
100% inspection of SHE critical equipment completed within 7 days of schedule.
Zero category 4 or above critical events occur.
Progress against targets will be reported annually to the EMT.

Ongoing Commitments

1. Maintain WorkSafe Major Hazard Facility Licence.
2. Progress will be reported to the Environmental Monitoring Team annually and will be contained in the Annual Corporate Sustainability Report.

Planning and Preparation

AV Laverton is a licenced Major Hazard Facility. The licence, which runs for 5 years, was granted by WorkSafe Victoria in 2002. The renewal process for the licence requires the review and revision of the plant Safety Case, due in December 2006, with a licence decision by June 2007. A facility cannot be operated without a current licence from WorkSafe Victoria. A critical part of a Safety Case is detailed planning and preparation including a Safety Management System, maintaining the integrity of both equipment and processes and a detailed Emergency Response plan.

Training of personnel at a Major Hazard Facility is vital to the integrity of operations, maintenance and response. Safety Case training is required for all employees.

The community is an integral part of the development of a safety case, and the community must be considered in the process of developing the safety case to ensure external impacts are tolerable. Once the review and revision of the Safety Case is complete it is important to inform the community of its outcomes.

Action 8.1: Provide briefings to Community stakeholders about the revision of the Safety Case, possibly in the form of a community meeting, advertised via letter drop.

By: March 2007

Planning and preparation applies to safety, health and environmental protection. AV currently is certified to ISO 9001 Quality Management System and AS 4801 Occupational Health and Safety Management System. With the combination of these two management systems and applying process over the whole business we believe that our Environmental Management System would be in compliance with ISO14000 series. Though we do not intend to seek certification to ISO 14000 series it would be prudent to confirm our Business Management Systems do in fact comply.

Action 8.2: Perform gap analysis of internal procedures and processes to ISO14000 series (Environmental Management Systems).

By: December 2008

Action 8.3: Determine further action where appropriate on the gaps identified.

By: March 2009

9. Incident Response

Objective

Minimise the impact of an incident at the Laverton site.

Background

In the event of an incident, response and management are vital in minimising impact on the community, people, the environment and the plant. For this reason AV has a detailed Emergency Response Plan which has been developed in conjunction with our people and relevant providers of emergency services. The plan is tested both internally and in conjunction with the relevant providers of emergency services to ensure it is well understood, practical and adequate in the event there is an incident at the Laverton plant. It is also reviewed to ensure it is current and that personnel are adequately trained.

Targets

Conduct 5 Emergency Response Exercises annually.

All people on site accounted for within 7 minutes of a plant alarm in 100% of occurrences.

Conduct an Emergency Response Exercise in conjunction with emergency services every 3 years.

Progress against targets will be reported annually to the EMT.

Ongoing Commitments

1. Review emergency response plan annually.
2. Invite EMT members to observe the emergency services exercise every 3 years.
3. Invite EMT members to observe an emergency response exercise annually.

Progress of the ongoing commitments will be reported to the Environmental Monitoring Team annually and will be contained in the Annual Corporate Sustainability Report.

Incident Response Actions

In the event there is a significant incident at AV and it impacts, or threatens to impact the local community, a protocol is necessary to ensure all appropriate people are informed of the event and are advised what to do in responding to the event. This not only includes the residents, but also the local medical service providers in case people present with signs or symptoms of exposure.

Action 9.1: Develop a process to inform the community and relevant local medical services of an incident when necessary.

By: August 2007

There is a substantial tract of land surrounding the manufacturing site and this land is sometimes illegally used by members of the community; rubbish is sometimes dumped, as are cars which are sometimes burnt. A contact number on the fences surrounding the site would assist the community in reporting any unusual or illegal activity to the company.

Action 9.2: Install a sign on the fences with a 24 hour contact number for community to report any unusual or illegal activities on AV land.

By: March 2007

Remote observation in the plant is a means to initially respond to incidents without the need to send people into potential danger. The technology of the current system could be improved to provide better picture clarity and wider coverage of the site.

Action 9.3: Upgrade the CCTV system.

By: December 2006

Glossary

- Autoclave** - name given to the **vessels** in which VCM is converted to PVC.
- Build up suppressant (BUS)** - chemical applied to the walls of the autoclave to prevent PVC particles from sticking to the walls and compromising the manufacturing process and ultimately contributing to waste .
- Bunds** - secondary containment areas under or around liquid storage tanks which are large enough to capture leaks or sprays, or to hold the contents of the largest tank in the bund along with additional capacity to hold rain or deluge water.
- Catalyst (Initiator)** - chemicals added to the reactor to start the polymerisation of VCM to PVC.
- Centrate** - term for water leaving the **centrifuge**.
- Centrifuge** - equipment in which slurry is processed to spin off excess water (the **centrate**) leaving behind wet PVC (the **wetcake**). By way of illustration, a washing machine operating in the spin cycle is a crude centrifuge.
- Co-generation** - simultaneous generation of electricity and heat.
- CO₂** - carbon dioxide gas.
- CWW** - **acronym for** City West Water.
- Effluent Treatment System** - waste water collection and processing system to ensure discharges to sewer meet City West Water's Trade Waste quality requirements.
- EIP** - **acronym for** Environment Improvement Plan.
- EMT** - **acronym for** Environmental Monitoring Team.
- EPA** - **acronym for** the Victorian Environment Protection Authority.
- Exothermic** - a chemical reaction that generates heat.
- Feedwater** - water supply to a process, eg, the boilers.
- Gasholder** - large water sealed vessel used to store gases at close to atmospheric pressure.
- General Waste** - any waste that is not a prescribed waste.
- Groundwater** - any water contained below the earth's surface as moisture adsorbed to soil and rock, and accumulating in gaps between soil particles and cracks in rock.

Jacket	- the walls of the autoclaves have an inner cavity where hot or cold water is circulated to transmit heating or cooling to the reacting PVC mixture.
Initiator	- chemicals added to the reactor to start the polymerisation of VCM to PVC.
Monomer	- single molecules of VCM which can be chemically joined into long chains or polymers.
MSDS	- Material Safety Data Sheet; an information sheet detailing the hazards of a chemical and suggested risk reduction measures
ppb	- acronym for parts per billion (billion = 1 000 000 000).
ppm	- acronym for parts per million (million = 1 000 000).
PVC	- acronym for polyvinyl chloride.
Prescribed Waste	- wastes listed in Schedule 1 of the Environment Protection (Prescribed Waste) Regulations 1998.
Recovery tanks	- tanks which store recycled VCM for future processing into PVC.
Recycle	- treat a material so it may once again serve a useful purpose.
Reduce	- reduce the consumption rate of a material.
Resin, Vinyl	- synonyms for PVC.
Reuse	- reuse a material more than once.
Silo	- vessel used to store the stripped and dried PVC powder before dispatch to customers.
Slurry	- mixture of PVC in water.
Slurry Tanks	- Stirred storage vessels for PVC slurry prior to entering the dryers.
SEPP	- acronym for State Environment Protection Policy.
Stripped slurry	- slurry in which the VCM level has been reduced by stripping.
Stripper, stripping column	- vessel where steam is used to heat the slurry so any VCM boils off (ie. strips) from the slurry.
Suspended solids	- all particles that can be filtered from a solution.

- TDS, total dissolved solids** - acronym and name of a measure of the saltiness of water.
- VCM** - acronym for vinyl chloride monomer, the basic raw material used to make PVC.
- Vinyl, resin** - synonyms for PVC.
- Waste** - any discarded, rejected, unwanted, surplus or abandoned matter.
- X16** - Ethyl Chloroformate. A Hazardous Substance used in small quantities to initiate the polymerisation process.

Appendix 1

Status of EIP II

Ref	Action	Target Date	Status
<u>Water use & recycling (Section 3.1 – Page 7)</u>			
3.1.1	Conduct a water usage audit in conjunction with City West Water to identify and report new opportunities to reduce water consumption to the EMT for strategic consideration.	Mar-03	7/04/03 - Complete - Water conservation efforts continue to focus on actions 3.1.2 and 3.1.4.
3.1.2	Implement cooling and effluent water recycling to the incinerator (target > 10m3/hr water saving).	Mar-03	09/02/04 – Complete. Plant is delivering savings in excess of 10 m3/hr.
3.1.3	Discuss the feasibility of returning recycled water from the Western Treatment Plant to the Altona area for use by AV and other large water users in the area.	Dec-03	7/04/03 - Complete - Melbourne Water do not have any immediate plans for return of effluent to the Melbourne area. The TDS level of "recycled effluent" is likely to be 800 - 1000 ppm which is higher than Laverton Plant effluent and the level that could be used in our process.
3.1.4	Investigate design options and develop a project proposal for use of recycled Dryer centrate.	2004	10/12/03 – Studies indicate the cost of equipment required to re-use centrate in Reaction cannot be justified (payback in excess of 10 years). Andrew Brown is continuing to assess other options to reduce water consumption as part of the “uprate projects”.
<u>Electricity (Section 3.2 – Page 10)</u>			
3.2.1	Optimize operation of the Stream 1 cooling and chilled water processes (Target > 250 MWh pa saving).	Dec-02	7/04/03 - Complete - Setpoint reduced by 1 °C.
3.2.2	Investigate options to reduce Stream 2 Cooling Tower minimum flow rates (Target > 340 MWh pa saving).	Mar-03	7/04/03 - Complete - The minimum kickback flow has been reduced from 400 to 125 l/s, delivering the savings envisaged.
3.2.3	Investigate options to reduce the Filtered Water Batch pump duty cycle (Target > 180 MWh pa saving).	Jun-03	June 06 – Complete - We are achieving the same results through the hot water flushing project
3.2.4	Update procedures to reduce usage of the second Process Water pump (dependent on water conservation measures.) (Target > 135 MWh pa saving).	Jun-03	09/02/04 – Complete. The plant is now running on one process water pump. The two pumps have been operated as a lead/lag pair since end of Jan.
3.2.5	Upgrade control systems to facilitate stopping of the slurry tank agitators as tanks empty (Target > 120 MWh pa).	2004	June 06 - Deferred pending DCS replacement. No new target date set until DCS replacement project fully scoped
3.2.6	Install lighting controllers on appropriate circuits to switch off lights when not required (Target > 600 MWh pa saving).	2004	Jun 06 - This project has been broken into 3 areas to be completed by AV's E&I team. First area to be completed by Mar 05 (completed). Quotation for recovery and reaction areas had a 8 year payback so will not be progressed. Currently we are sourcing quotations for the services area.
3.2.7	Develop a project to replace high wattage light fittings with energy efficient, serviceable units.	2004	June 06 - Fittings selected. Replacement of first half of the plant progressing in the 0607 financial year

Ref	Action	Target Date	Status
<u>Natural Gas Usage (Section 3.3 – Page 12)</u>			
3.3.1	Investigate and implement options to reduce consumption of steam in the PVC Strippers (preliminary investigation has estimated likely savings to be at least 1200 kg/hr, equivalent to 30,000 GJ gas pa).	Mar-03	10/12/03- Complete - Forecast savings achieved. The Stripper DCS control program was updated at the end of November to improve stability. Operation will be monitored during December and January to assess whether this could allow further reductions in stripping energy (beyond the original target).
3.3.2	Investigate and implement options to reduce Incinerator gas consumption (target subject to further investigation).	2004	June 06 - Deferred pending DCS replacement. No new target date set until DCS replacement project fully scoped
3.3.3	Fit economizers to recover heat lost in Boiler flue gases (Target 17,500 GJ gas saving pa).	2004	13/04/04 – Complete. Economizers have been installed and are operating above target efficiency.
3.3.4	Investigate the feasibility of co-generation of steam and electricity in conjunction with other plant capacity expansion options.	2005	7/08/03 - Complete - Andrew Brown has studied a range of options, indicating that the payback period at foreseeable plant output rates and current pricing exceeds 10 years. Based on current gas engine costs this would only be feasible if replacement boilers were required and/or plant output was raised beyond 180 kt/annum.
<u>Air Emissions (Sections 4.1 and 4.2 – Page 17)</u>			
4.1.1	Improve Autoclave preparation steps and introduce testing prior to introduction of air, to reduce residual levels to below 1500 ppm before opening.	Dec-02	10/12/03 – Closed - Stream 1 A/C preparation now routinely achieves residual levels below 1000 ppm. Stream 2 is achieving around 2,500 (down from 3,500). An Action amendment form has been raised proposing new actions to reduce Stream 2 residual VCM levels to below 1500 ppm by Dec 04. See action 4.2.9.
4.1.2	Upgrade SNOOP monitoring reports to display and trigger earlier response to adverse performance trends.	Mar-03	7/08/03 - Complete - Software mods introduced at Xmas.
4.2.1	Obtain X16 spill response suits and conduct training for rapid spill response.	Sep-02	7/04/03 - Complete.
4.2.2	Investigate use of the Ante Vac system to improve capture and dispersal of VCM released from vessels during opening.	Dec-02	7/04/03 - Complete - Proposal rejected due to eflux velocity & stack height concerns.
4.2.3	Benchmark fugitive emission quantification methods with overseas Vinyl manufacturers.	Jun-03	9/10/03 – Complete. EVCM method adopted (consistent with NPI /US EPA Method 21). Collection of data has commenced.
4.2.4	Improve ammonia catch pot drain control to reduce the risk of release during draining of accumulated oil from the system.	Dec-03	June 06 – This project has been rejected as it has been replaced with ammonia detection.
4.2.5	Provide in-plant monitoring for early detection of any ammonia leaks in the Recovery section of the plant.	2004	June 06 – Progressing to be completed in the next half, getting IS equipment is most of the delay.
4.2.6	Develop a plan to replace R11 used in the Refrigeration units.	2004	Oct 04 – Complete – Plan developed in Nov 04.

Ref	Action	Target Date	Status
4.2.7	Improve autoclave Build Up Suppressant effectiveness to reduce the frequency of autoclave openings and resulting VCM emissions (Target > 250 batches between autoclave openings).	2004	Oct 04 – Recent performance indicates that we are achieving our target. Continue to monitor complete
4.2.8	Develop procedures and log sheets to adopt the EVCM method for quantification of fugitive leaks and agree techniques with the EPA for quantification of Gasholder, Avery Hardol and effluent pond emissions	Mar 04	Oct 04 – Complete - This has been completed in time for NPI reporting in Sep 04. Process is fully documented.
4.2.9	Improve Stream 2 Autoclave Post Vac operation and/or eliminate or reduce sources of VCM contributing to residual VCM levels after Post Vac to reduce average residual levels in Stream 2 autoclaves to below 1500 ppm before opening.	Dec 04	08/06/04 – Complete - Changes to the preparation procedure, including slip plating of lines connected to VCM prior to final preparation have made significant progress. The 3 Stream 2 A/C openings since meeting 22 Apr were below 1500 ppm.
<u>Dust Emissions (Section 4.3 – Page 21)</u>			
4.3.1	Survey sources of dust emissions in the Dryer building and prioritize for elimination (top 3 to be addressed by Dec 2003).	Dec-03	June 05 – Complete. S1 Dryer Refurbishment currently underway. This will reduce the largest remaining source of PVC powder emissions.
4.3.2	Conduct dose measurement to confirm warehouse and dryer operator dust exposure does not exceed occupational exposure limits.	Jun-03	10/12/03 – Complete - Monitoring conducted during Nov hard grade change confirmed dust exposure is at or below 1/10 th the exposure standard for PM10 dust.
4.3.3	Investigate options to reduce powder emissions during tanker/ISO loading.	2004	June 06 – Project L-0370 progressing to be completed by the end of the financial year. Silo access is the limiting factor.
<u>Plant Effluent (Section 4.4 – Page 23)</u>			
4.4.1	Install “up-stream” cooling of Stream 2 centrate in place of final effluent cooling to ensure ongoing compliance with the maximum effluent temp limit of 38 °C	Oct-02	7/04/03 – Complete
4.4.2	Conduct a risk assessment to identify and review controls for potential causes of trade waste agreement breaches.	Nov-02	09/02/04 – Complete. Actions to be assigned owners & target completion dates.
4.4.3	Conduct follow-up training of plant operators and trades people in trade waste requirements and spill response procedures.	Mar-03	7/04/03 – Complete
4.4.4	Develop an MSDS to capture information and inform people of the biological hazards associated with plant effluent water.	Jun-03	12/10/03 – Complete – MSDS issue on BMS.
4.4.5	Develop a plan for increasing effluent water “contingency storage” capacity.	2004	7/8/03 - Following replacement of the "final" effluent cooling tower, temperature control has improved to the point additional storage capacity is not required. – Complete

Ref	Action	Target Date	Status
4.4.6	Investigate and where practicable implement actions to reduce sources of TDS in plant effluent (action plan to be developed by Dec 2003).	Dec-03	13/04/04 – Complete - Analysis of the sources of TDS and possible ways of reducing TDS failed to identify any practicable projects to reduce TDS loads. Options were identified that could influence the sodium absorption ratio (SAR) however costs could not be justified on commercial or technical grounds.
<u>Stormwater / Land (Section 4.5 – Page 24)</u>			
4.5.1	Conduct training and mark stormwater collection points to reinforce awareness of the destination and importance of protecting stormwater from the site.	Mar-03	9/10/03 – Complete.
4.5.2	Conduct follow up targeted soil sampling (3 yearly) at points agreed with the EMT to confirm current AV operations are not contributing to land contamination (“Leachability” tests, groundwater testing and/or remediation would be undertaken to control the risk from any contamination found to have arisen from AV operations).	Mar-03	9/10/03 – Complete. Results presented at EMT Meeting 21/10/03.
4.5.3	Develop a project proposal for remote actuation of stormwater discharge isolation valves.	Jun-03	June 06 –Discuss options for storm water containment with the EPA.
4.5.4	Re-direct Dryer area steam trap discharges to effluent.	Jun-03	Jan 05 – Complete
4.5.5	Remove the underground petrol tank.	2004	June 05 – Complete
4.5.6	Investigate options to collect and treat remaining steam trap discharges.	2005	June 06 – Complete
4.5.7	Review the adequacy of site spill collection bunds / kerbed areas and take action as necessary	2005	June 05 – Complete. Spill collection portable bunds and kerbing, plus storm water seals have been purchased. The risk assessment of the chemical areas has led to no other items being identified as needing action.
<u>Noise Management (Section 5 – Page 26)</u>			
5.1	Update the site noise control plan to reflect information from the 2001 dose measurement study.	Nov-02	7/04/03 - Complete.
5.2	Improve designation of hearing protection zones in the plant area.	Nov-02	13/04/04 – Complete – New signage erected in the St 2 Dryer area and the SW approach to the Stream 2 Reaction area bund.
5.3	Investigate options to reduce noise from the extraction air system in the Additives Preparation Area.	Mar-03	June 06 – Project is being reviewed. Noise is not in the next EIP.
<u>Solid Waste Management (Section 6 – Page 27)</u>			
6.1	Work with the EPA and Waste Receivers to improve the accuracy of classification and quantification of Prescribed Waste sent to landfill.	Mar-03	7/08/03 - Complete - Electronic certificate system in use for most regular pick-ups. Contract for treatment / disposal has been shifted to Collex.
6.2	Investigate options to eliminate or find re-use / recycling opportunities to reduce Prescribed Waste streams currently destined for secure landfill by at least 20%.	Jun-03	June 06 – Ongoing. Letter sent to the EPA on the proposal to recycle.

Ref	Action	Target Date	Status
6.3	Investigate and implement recycling opportunities for non-Prescribed Waste currently sent to landfill (Target at least 10% reduction in recyclable material sent to landfill – requires new performance measurement process).	2004	June 05– Complete - Co-mingle bins provided in Amenities and Control Room. Gardener now taking the green waste to the appropriate recycling venue
6.4	Investigate options to source anti-static and/or other drummed materials in bulk.	2004	June 06 – Complete. All possible materials are now sourced in bulk.
6.5	Support establishment of a group involving the EPA and members from PACIA and/or the AIG Environment Working Group to investigate options to recycle paper / cardboard chemical product packaging.	Jun-04	June 06 - AV joined Bulk Bag Working Group to progress this. Work still underway to find an appropriate solution for these waste streams.

Appendix 2

EIP Action Amendment Proposal form

Existing Action Item

Section	Action	Target Date
<u>Impact Area</u>		

Amended Action Item

Section	Action	Target Date
<u>Impact Area</u>		

Reason for Amendment

New information, etc.

The following signatories endorse this amendment to the Environment Improvement Plan action items:

(Community Rep)

Australian Vinyls Corporation Pty Ltd
(General Manager Manufacturing)

(Community Rep)

Wyndham City Council

(Community Rep)

EPA

(Community Rep)

City West Water