



Sustainability Report  
2008



## Our business

We are one of Australia's main suppliers of chemicals, fertilisers and related services to the mining, minerals processing, industrial and agricultural sectors.

We operate a major industrial complex at Kwinana in Western Australia as well as complementary facilities in regional Western Australia.

In September 2007, we acquired Australian Vinyls (AV), a leading supplier and manufacturer of polyvinyl chloride (PVC or vinyl) resins and wood-plastic composite products located in Victoria. The business also supplies specialty chemicals for the plastics industry and caustic soda to a variety of downstream manufacturing industries.

AV's results are being included in this report for the first time. AV data included in this year's report is for the full financial year 2007/2008 including the period before the business was acquired by CSBP. National Pollutant Inventory (NPI) data is for the previous financial year and Lost Time Injury (LTI) data for AV is included from the time of acquisition.

CSBP in the context of this report refers to all of our operations, including AV. Where required, this will be qualified to specify if we are referring to our Western Australian operations exclusive of AV, or to our AV operations in Victoria exclusive of our Western Australian operations.

ModWood, a subsidiary of AV that produces wood-plastic composite products at its Campbellfield plant in Victoria, will

be referred to specifically where relevant, but otherwise is to be read as being part of AV.

The operations of our 75 per cent-owned sodium cyanide joint venture, Australian Gold Reagents Pty Ltd (AGR) are included in the report, but Queensland Nitrates Pty Ltd, a CSBP/Dyno Nobel Asia Pacific joint venture, is not included because we do not operate this business.

As at 30 June 2008 CSBP employed 788 people, excluding contractors and other indirect employees.

CSBP's main chemical products include ammonia, ammonium nitrate, sodium cyanide, sodium hypochlorite, caustic soda and, through the recent addition of AV, vinyl resin and wood-plastic composite products.

CSBP also manufactures, imports and distributes an extensive range of phosphate, nitrogen and potassium fertilisers, in blended and liquid form.

On the following page, our performance against 2008 priorities relates to CSBP's Western Australian operations only.



## 08 Priorities

- Improve workplace safety, control risk and minimise injury.
- Reduce contaminant emissions to air, water and land.
- Operate our manufacturing and storage facilities to high standards of process safety.
- Effectively deal with our legacy wastes.
- Attract and retain a skilled workforce.
- Supply quality products and services to our customers safely.
- Increase our use of recycled and reclaimed water supply sources.
- Positively contribute to and engage with the communities in which we operate.

## 08 Outcomes

- **Partially achieved.** 12.5 per cent reduction in workplace injuries. 90 per cent of scheduled safety management system and quality management system audits completed.  
 The number of personal hazard checks met targets but uptake was varied across the business.  
 Drug and alcohol testing continued.  
 New permit to work system using lockout processes fully introduced.
- **Partially achieved.** Metals discharged from CSBP's Kwinana site continue to trend down from 56 kilograms in 2006/2007 to 42.7 kilograms in 2007/2008. Nitrogen load discharged has increased from 28.8 tonnes to 41.9 tonnes.
- **Achieved.** CSBP has safety reports, approved by DoCEP, for all Major Hazard Facilities (MHFs) operated at the Kwinana facility.  
 Introduced measurement indices for process safety.  
 Internal process safety auditing in our MHFs commenced in 2008.
- **Achieved.** Legacy waste plan continued to be successfully implemented.  
 Excavations at Bayswater refilled in 2008 and the water treatment plant continued to operate successfully with 1.5 tonnes of aluminium, 1.3 tonnes of fluoride and 1.8 tonnes of iron removed this year.  
 8,179 tonnes of neutralised waste removed from our Bunbury site and 2,330 tonnes of neutralised lime solids removed from our Albany site for safe disposal.
- **Partially achieved.** Business initiatives including developmental programs, more frequent benchmarking of remuneration and benefits, and improvements to our recruitment programme have been implemented.  
 Turnover is higher than in previous years, but this can in part be attributed to Western Australia's resources-fuelled skill shortage.
- **Achieved.** ISO9001 re-certification for the manufacture of ammonium nitrate. Our Kwinana laboratory retained its National Association of Testing Authorities accreditation and conducted thousands of quality-based tests of our products.
- **Achieved.** KWRP water use increased to 1,395 megalitres in 2007/ 2008, up from 1,287\* megalitres in 2006/2007. Use of recycled water within plants increased from 20,052 kilolitres in 2006/2007 to 20,115 kilolitres in 2007/2008.  
\*Note: figure recalculated based on revised methodology
- **Achieved.** Membership and participation of key Kwinana Industries Council committees including:  
 Kwinana Industries Public Safety Group;  
 Kwinana Industries Public Safety Liaison Group; and  
 Kwinana Industries Public Affairs and Communications Advisory Committee.  
 Kwinana Industries Environment and Planning Committee.  
 Community support activities continued and CSBP representatives attended Kwinana Community and Industries Forum meetings.

AV also published priorities for 2007/2008 in its 2006/2007 sustainability report. Its performance as reported in this document refers to these priorities where relevant. Information on AV's

specific priorities for 2007/2008 can be found in its 2006/2007 sustainability report available through its website at [www.av.com.au](http://www.av.com.au).

## 09 Priorities

- Improve workplace safety, control risk and minimise injury.
- Minimise contaminant emissions to air, water and land.
- Operate our manufacturing and storage facilities to high standards of process safety.
- Effectively deal with our legacy wastes.
- Attract and retain a skilled workforce.
- Supply quality products and services to our customers safely.
- Maximise our use of recycled and reclaimed water supply sources.
- Reduce waste sent to landfill.
- Positively contribute to and engage with the communities in which we operate.

### Overview

**Our focus is the safe operation of our facilities in a way that minimises any adverse impact on our employees, the environment or the communities in which we operate.**

During the year we completed the introduction of a new permit to work system and drug and alcohol policy at our Western Australian operations. These initiatives have been an ongoing part of our efforts to continually improve our safety performance.

We focused on increasing solid waste recycling through the introduction of a recycling efficiency scorecard across the Kwinana site, continued implementation of our legacy waste management plan and reduced metal contaminant discharges to water through the use of our nutrient-stripping wetland.

CSBP commissioned a new ammonium nitrate facility at our Kwinana site. The facility includes a nitric acid plant, ammonium nitrate plant, a prilling plant, a replacement prilled ammonium nitrate storage and dispatch facility incorporating new security features and has expanded our ammonium nitrate production capacity to approximately 470,000 tonnes per annum.

AV and ModWood's priorities focus on reducing energy and water consumption, reducing emissions and waste, protecting employee and community health, and being responsible stewards of our products.

During the past year, AV's manufacturing plant experienced a prolonged production curtailment due to difficulties in commissioning an upgraded distributed control system following a planned shutdown. As a consequence, resin production for the year was significantly lower than usual, and the performance reported here for the business has therefore been affected.

Data for the year on key indicators such as energy use, water consumption and greenhouse gas show that the PVC plant performed well in relation to its sustainability targets during the reporting period until the time of the shut-down in March 2008.



### Business Management

#### Training

CSBP is committed to training and developing our employees to retain and maintain a skilled workforce for our operations.

We appointed a safety and compliance trainer to deliver specific courses on safety-critical and compliance-based training for our operational workforce in Western Australia, and a people development advisor to drive development of leadership and business skills across the organisation.

In 2007/2008 we focused our training efforts by:

- continuing to update technical learning modules, including defining competency standards and developing classroom-formatted training to support our employee learning in Western Australia;

- designing a new training database as part of our Western Australian human resources information system that records and reports employee competence, allowing better management of compliance and skills development;
- working towards establishing a dedicated training facility at Kwinana to deliver CSBP's safety-critical training as well as improve the rigour and efficiency in competency assessment; and,
- conducting on-the-job training using structured programmes, detailed procedures, training modules or job-cycle checks at all of CSBP's plants.

During the year, CSBP spent more than \$1.4 million on training and development, equating to 2.26 per cent of payroll costs.

The company supported 19 apprenticeships and traineeships during the financial year.

#### Compliance

The CSBP Compliance, Safety and Environment teams and the AV Risk and Support Services team provide guidance and advice to the business on current and changing legislative and public policy requirements, and support the business in complying with these requirements.

#### Environmental

During the year, we notified the DEC of 22 reportable events under the Environmental Protection Act 1986 in Western Australia.

There has been a reduction in reportable events from last year relating to our wastewater discharges due to an increase in the volume of wastewater treated in our nutrient-stripping wetland prior to discharge.

Of the 22 reportable incidents, five were potential non-compliances, while 17 incurred no potential enforcement action, and, of these 17, five related to a reportable threshold (between 75 and 100 per cent of the relevant licence limit), eight related to licence targets and four related to commitments in our Albany Environment Management Plan.

In Western Australia our reportable events for the year were:

- three potential non-compliances related to stack test results for the ammonia plant auxiliary boiler being above our licence limit (results were 168mg/m<sup>3</sup>, 160mg/m<sup>3</sup> and 152mg/m<sup>3</sup> - the licence limit is 144mg/m<sup>3</sup>). The DEC advised that no further action was required. In November 2007 this licence limit was amended to a licence target.
- six reportable events related to stack test results for the ammonia plant auxiliary boiler being above our licence target. We continue to work with the DEC to align the air emission conditions of our *Environmental Protection Act 1986* licence to levels in accordance with ambient air standards.
- two potential non-compliances related to stack test results from the superphosphate manufacturing plant being above our

licence limit for hydrogen fluoride (April and June results were both 0.06g/m<sup>3</sup> - the licence limit is 0.05g/m<sup>3</sup>). DEC is yet to provide advice regarding these events.

- three reportable events related to wastewater discharges to the Sepia Depression Ocean Outfall Line (SDOOL) being above the reportable threshold for the total inorganic nitrogen three monthly rolling average (June to August 2007 - 162 kg/day; July to September 2007 - 152 kg/day, April to June 2008 - 174 kg/day - the reportable threshold is 150 kg/day).
- one event related to wastewater discharged through the emergency beach outfall being above the reportable threshold for copper (0.23mg/l - the reportable threshold is 0.21mg/l).
- one event related to wastewater discharged to the SDOOL being above the reportable threshold for methyldiethanolamine (MDEA) (13.0 mg/l - the reportable threshold is 12.0 mg/l).
- two events related to stack test results at our sodium cyanide plants. One result was for the ammonia emission rate for the solid sodium cyanide plant (2.6g/sec - the target is 1.5g/sec) and the other for the ammonia emission rate for the No 2 sodium cyanide liquid plant (13.95g/sec - the target is 0.6g/sec) as a result of deterioration of the selective catalytic reduction catalyst, which was subsequently replaced.
- four events occurred at our Albany site. These related to untreated surface water overflowing our weir, a high total suspended solids result, an elevated pH result and the total nitrogen discharged was above the Environmental Management Plan target of 1,000 kilograms per year.

One of AV's priorities is to ensure there are no accidental releases of either vinyl chloride monomer (VCM) or ethyl chloroformate from unlicensed points in the PVC plant. In 2007/2008, the company's goal of zero accidental emissions was achieved.

Licence breaches at AV are recorded in real-time using our online, continuous monitoring system. There was one event at AV during the year resulting in the PVC plant exceeding its Environment Protection Authority Victoria (EPA) Waste Discharge Licence emission limits. In July 2007, VCM was being vented to the degasser in order to fix a leak in a vent cap seal when the seal broke, releasing the remaining contents of the vent up a stack. We breached our stack licence limit for VCM, resulting in an emission of 6.8 kilograms of VCM over a ten minute period. The incident was reported to the EPA. No action was taken by the EPA.

**CSBP Safety and Compliance Trainer Andy Raxworthy (centre) delivers confined space entry training.**



## Health and safety

In Western Australia we received one improvement notice from DoCEP in relation to the lift installed and used at the new prilling plant which is part of the ammonium nitrate expansion project at our Kwinana site. The lift was not registered with DoCEP prior to operation. This was immediately corrected.

There were no cases of non-compliance with the Australian Safety and Compensation Commission exposure standard for VCM during 2007/2008 in our AV business.

One of the Laverton plant's cooling towers recorded a positive reading for Legionella in December 2007 during a government investigation into Legionnaires disease in the area. The reading was at the minimum detectable level and was believed to have come from off-site. No further positive results were recorded in follow-up testing and no employee exposure was found.

## National Pollutant Inventory (NPI)

Emissions notifiable under the NPI were estimated for substances listed on the NPI for CSBP Kwinana, Albany, Bunbury, Esperance and Geraldton sites and AV at Laverton.

Data for the 2006/2007 reporting period is available at [www.npi.gov.au](http://www.npi.gov.au).

All of our substance emissions for 2006/2007 were ranked by the NPI as low, except VCM at AV which was ranked as high. AV, as the only PVC manufacturing plant in Australia, is the largest point source emitter of VCM. Data for 2007/2008 will be provided to the Government as required in September 2008, and will be publicly available in 2009.

In 2006/2007, the three most significant emissions from CSBP's Kwinana site were ammonia (88,346 kilograms to air and water), oxides of nitrogen (338,580 kilograms to air), and 10 microns particulate matter (102,226 kilograms to air). This is a 48.2 per cent decrease in ammonia emissions, and an increase in both oxides of nitrogen (54.5 per cent) and particulate matter emissions (46.7 per cent) compared to 2005/2006.

The decrease in ammonia emissions is contributed to by a correction in the calculation method used for emissions from the ammonium nitrate prilling plant, as well as decreased fertiliser granulating plant operations.

The increase for oxides of nitrogen results from an increase in these emissions from the auxiliary boiler and primary reformer in the ammonia plant. Both of the sodium cyanide liquids plants had an increase in emissions with the inclusion of direct measurement data not previously included in reporting.

While a reduction in wharf operations in 2006/2007 resulted in a decrease in particulate matter emissions from this area, more accurate data for 2006/2007 from the prilling plant dryer and pre-dryer stacks were the major factor in these increased emissions.

AV's total volatile organic compounds emissions of 23.9 grams per tonne of PVC produced in 2006/2007 were slightly lower than emissions during the 2005/2006 year.

## Licensing and approvals

AV is a licensed Major Hazard Facility (MHF) in Victoria. Its current five-year licence was renewed in June 2007. In Western Australia our ammonium nitrate, ammonia and sodium cyanide facilities are classified as MHFs under the relevant dangerous goods legislation and all have current licences to operate. We also hold a licence to operate a hypochlorite manufacturing facility, also classified as an MHF, at our Kwinana site.

We are not aware of any non-compliance during the year with licensing or approval conditions or other requirements, except as set out below or above under Environment or Health and Safety.



**Australian Vinyls in Laverton, Victoria.**

### Management systems and policies

The safety management system for our Western Australian operations was reviewed during the year and submitted for internal management review and approval in April 2008.

A complete review of the work permit system at Kwinana was conducted in 2005/2006 and the implementation of a new system was completed during 2007. This new system and associated procedures incorporated the use of locks for isolations, as required by legislation, and included more stringent risk assessment.

We continued to implement our environmental management system with ongoing review and assessment of our environmental risks. Environmental action plans and management plans continue to provide the basis for environmental improvement across the business in Western Australia.

AV maintains an environment management system for its operations and continues to implement a community-agreed, three-year environment improvement plan (2006-2009) which identifies actions to improve our safety, health and environmental performance. In addition AV has a safety, health and environment policy which requires us to recognise the principle of sustainable development in developing and improving products and processes.

## Environmental

### Air (atmospheric emissions)

#### Dust

Our dust emissions in Western Australia are associated with particulate emissions from various operating plants, materials loading on our sites and the large area of unsealed surfaces on our sites. We estimate dust emissions using the relevant factors from the NPI and will report them to the NPI in September 2008.

Dust from all sources reported under the NPI last year (to 30 June 2007) was 102 tonnes. We continued to apply a dust suppression coating on our phosphate rock stockpile at Kwinana.

During the year we received two complaints relating to particulate emissions from our Kwinana site. One was from a member of the community regarding a visible emission from our prilling plant tower stack. The plant was operating normally and stack test results were well below licence limits at the time. The visible emission was attributed to the weather conditions on the day.

The other complaint was from an industrial neighbour relating to dust during movement of phosphate rock on our Kwinana site.

During 2007/2008 we installed two ambient dust monitors at our Kwinana site. These read and record real-time data on a continuous basis. The data is then sent to a database for retention and analysis.

ModWood had three dust complaints during the year all of which were notified to the company by EPA Victoria. Two of the complaints related to wood dust emitted offsite to neighbouring property. The third complaint notified to the EPA related to our sawdust unloading process. Investigation led to the discovery of the sources of leaking sawdust and a new dust collector was installed and commissioned.

#### Odour

No odour complaints were received during the year.

#### Vinyl chloride monomer and ethyl chloroformate

Vinyl chloride monomer (VCM) is a liquefied gas maintained at pressure and is the primary raw material required for the manufacture of PVC. AV operates a real-time monitoring system for emissions to ensure licensed emission limits are not breached and fugitive emissions are minimal. We aim for less than 30 grams of VCM emitted per tonne of PVC produced. In 2007/2008, total emissions of VCM to air and water were 20.9 grams per tonne PVC produced, compared to 17.4 grams per tonne last year due to lower production and the estimation methodology which reports the lowest detectable limit levels of emissions even when there is no production.

Plant emissions of ethyl chloroformate, an initiator in the PVC reaction process and a hazardous substance, were well below the licence limit of 0.36g/minute. There were no spills or exposures above the time weighted average permitted by the EPA for ethyl chloroformate.

#### Greenhouse emissions

Our total greenhouse emissions were estimated to be 1,407,618 tonnes of carbon dioxide equivalent, up 10 per cent on last year. This includes a contribution of 62,992 tonnes from AV and ModWood.

Our carbon dioxide equivalent emissions per unit of production were:

- 0.86 tonnes per tonne of production for CSBP in Western Australia, down 6.5 per cent on last year

- 0.54 tonnes per tonne of production for AV in Laverton, up 3.9 per cent on last year
- 1.2 tonnes per tonne of production for ModWood in Campbellfield, up 33 per cent on last year.

In Western Australia our greenhouse emissions were largely due to our Kwinana ammonia plant (37 per cent), nitric acid plants (56 per cent) and sodium cyanide plants (four per cent). The total greenhouse gas emission in Western Australia was reduced due to the suspension of onsite ammonia and sodium cyanide production in June 2008 as a result of the disruption to Western Australia's gas supply.

The overall increase from the previous year is due to the incorporation of data from AV and the second nitric acid plant, which was commissioned in February 2008 and contributed 136,006 tonnes carbon dioxide equivalent for the year.

CSBP has been a signatory to the Australian Government's Greenhouse Challenge Plus programme, or its predecessor, since 1997. AV has been a signatory since 2000.

AV's total greenhouse emissions at Laverton were 13 per cent lower this year due to reduced energy consumption because of the prolonged plant shut down in the second half of the year. Despite the lower production base, on a per tonne of product basis, emissions met AV's target of less than 550 kilograms carbon dioxide equivalent per tonne of PVC.

Last year, AV commenced reporting greenhouse emissions related to the road transport of its resin products to customers by its two largest carriers. In 2007/2008 emissions from this transportation amounted to 5,260 tonnes carbon dioxide equivalent, representing 8.1 per cent of AV's total estimated emissions. These emissions are not included in CSBP's total.

ModWood contributed 3,355 tonnes of greenhouse gas to AV's total.

## Noise

No noise complaints were reported to CSBP in Western Australia during the year.

As reported last year, we have potential industry-to-industry non-conformances on the northern and eastern boundaries of our Kwinana site.

**The CSBP logo is repainted on the re-cladded superphosphate storage bin following the completion of the removal of asbestos sheeting earlier this year.**



The Western Australian *Environmental Protection Act 1986 Noise Regulations* are under review to potentially increase the industry-to-industry boundary level limits from 65dB(A) to 75dB(A). If the limits are increased, we will be in compliance with the Regulations at our boundary.

Our Kwinana site is not a significant contributor to noise in any residential area as defined by the Regulations.

AV received a noise complaint from a local resident at night. The cause of the noise was addressed and the matter resolved.

## Waste

### Solid/liquid waste

At Kwinana, our solid waste during the year consisted primarily of general waste created during the construction of our new ammonium nitrate production facilities.

Our total solid waste stream during the year was estimated to be 1,008 tonnes, down 16.2 per cent on last year. Of this amount, we estimated that 17.6 per cent was recycled and 82.4 per cent was disposed of as landfill. In addition to this, 593 tonnes of asbestos cement sheeting was also disposed of as landfill. The increase from last year is due to our shed re-cladding project which involved the removal of asbestos sheeting from the superphosphate shed at Kwinana and replacement with polycarbonate.

Liquid waste during the year consisted primarily of wastewater from our production processes and stormwater run-off.

At Kwinana, our total effluent disposed to the Sepia Depression Ocean Outfall Line (SDOOL) during the year was estimated to be 597,266 kilolitres. This was estimated to be 17.8 per cent more than last year due to the ammonium nitrate expansion which resulted in additional blowdown from an increase in the number of cooling towers on site.

We reused 20,115 kilolitres of wastewater at Kwinana, an increase of 0.5 per cent on last year.

We disposed of 1,993 kilolitres of liquid waste from our Kwinana site, an increase of more than 400 per cent compared to last year. Liquid waste generated during construction, commissioning and operation of our new plants contributed to this increase. We estimate that 12 per cent of this was reused, with the remainder disposed of at a licensed treatment facility.

Our Albany site treated and disposed of 103,465 kilolitres of rainfall-related surface water and our Bibra Lake site disposed of 3,754 kilolitres of industrial effluent to sewer.

AV focused on reducing the amount of prescribed industrial waste (PIW) generated by the production process and diversion of both PIW and non-prescribed waste from landfill. The waste generated by AV in the year was equivalent to approximately 1.75 per cent of production.

Our PIW includes rogue polymer (residue from the reaction process), chemicals packaging and waste chemicals including some specialty products waste. AV sent a total of 19.9 tonnes of solid PIW and 13.1 kilolitres of liquid PIW to treatment, landfill or storage in 2007/2008, including significant volumes of flushing water removed from site. Nearly eight tonnes of solid PIW and 1.3 kilolitres of liquid PIW were sent for recycling.

In terms of general waste, AV recycled 438 tonnes of cardboard, office paper, old reusable bulk bags and packaging. A total of 1,451 tonnes of general waste were sent to landfill, significantly higher than in 2006/2007 and not meeting our target of a five per cent reduction. We believe the large increase was due to the commissioning of a new control system, a major clean-up of the warehouse and significantly more people on site during the prolonged shut down.



▲  
Farmer and CSBP fertiliser  
customer Colin Pearse.

At AV, the volume of trade waste discharged was approximately 10 per cent lower than last year but a seven per cent deterioration on a per tonne of PVC produced basis at 3.55 kilolitres per tonne.

The quality of trade waste did not breach our trade waste agreement with City West Water Victoria although quantities of both total dissolved solids and suspended solids were higher.

### Recycling initiatives

We continued to implement a number of reuse and recycling initiatives, including the reuse of waste oil and drums, as well as the recycling of office material, mobile phones, fluorescent light tubes, batteries, packaging and scrap metal.

This year in Western Australia, we introduced a scorecard to demonstrate recycling efficiencies in the different areas of the business and results were communicated to employees through our intranet.

In order to divert waste from landfill, our AV business reviews ways to minimise waste generation and where there are wastes, investigates recycling opportunities for the materials. AV encourages customers to take resin in bulk rather than packaged in bags. Seventy-eight per cent of resin product is shipped to customers in bulk. We also source input chemicals for delivery in bulk where feasible.

A small quantity of end-of-life sheet vinyl flooring removed from the laboratory at Laverton was sent to a reprocessor for recycling.

At ModWood, recycling is a fundamental part of business as the wood-plastic composite product is made from waste wood, milled into a wood flour and post-consumer plastic bottles. Over 2,800 tonnes of recycled wood and plastic, representing 86 per cent of our raw material inputs, were used by ModWood.

### Land

#### Flora and fauna

We continue to manage the feral pigeon issue on our Kwinana site by deterring pigeons from breeding and roosting on the premises, and by limiting potential food sources. This is achieved by regular inspections and removal of feral pigeons.

At our Kwinana site we have continued to manage feral cat numbers and captured and released snakes, where they represented a danger to humans or were in danger themselves. CSBP has several staff with the required competencies for snake handling.

#### Contamination

Our Bayswater site in Western Australia (formerly owned by Cresco) is contaminated by wastes resulting from the past production of superphosphate.

Remediation to date has included the excavation and safe disposal of approximately 136,000 tonnes of contaminated material, subsequent backfilling of these excavations with clean fill from on and off site sources and operation of a lime dosing groundwater treatment plant. Demolition of the Bayswater No 1 superphosphate shed began in July 2008.

An Outline Development Plan for the eventual development of the site was submitted to the City of Bayswater and advertised for public comment.

During March and April of this year 8,179 tonnes of neutralised lime solids were transported to landfill for disposal from our Bunbury site. We are undertaking a risk assessment of the Bunbury site with our consultants and from this will develop a soil remediation and validation plan for further remedial works in 2008/2009.

During May 2008, just over 2,330 tonnes of neutralised lime solids were transported from our Albany site to the Millar Road landfill in Rockingham for disposal.

In March 2007 we reported several of our Western Australian sites to the DEC as required under the *Contaminated Sites Act WA (2003)* which came into operation in late 2006. Three of these sites - Bayswater (contaminated – remediation required), Wellard Road Leda (contaminated – restricted use) and Geraldton Area F (contaminated – remediation required) - were classified as contaminated and we have activities underway to deal with the contamination. Remediation activities at the Bayswater site are described above. As reported previously, we have entered into a contract with Manna Resources to remove, or reprocess, the large stockpile of gypsum at Wellard Road for a range of beneficial uses in agriculture and mining.

A further eight land holdings at four of our sites are classified as possibly contaminated – investigation required, including the Bunbury site referred to above, and four landholdings at two sites (our Kwinana site and Geraldton Area C) are still awaiting classification at 30 June 2008.

Soil and groundwater at our Laverton site are affected by chemicals consistent with activities formerly conducted at an adjacent site by another operator, not associated with the manufacture of PVC. These chemicals include chlorinated and non-chlorinated substances and metals. Our objective is to ensure our site is safe for industrial use and does not pose an unacceptable environmental or human health risk. Monitoring results indicate this objective is being met.

### Resource usage

#### Energy

Through our parent company, Wesfarmers Limited, CSBP is a participant in the Commonwealth Government's Energy Efficiency Opportunities Programme.

Total energy consumption was estimated to be 10,710,969 gigajoules up 7.1 per cent on last year (which did not include AV).

The main energy use during the year at our Kwinana site related primarily to ammonia and sodium cyanide production. Total energy consumption at the site was estimated to be 10,292,377 gigajoules, up 3.4 per cent on last year. The total energy consumption per tonne of production was estimated to be 6.59 gigajoules, down 8.2 per cent on last year.

This energy use is represented by liquid fuel (0.67 per cent of total energy consumption), electricity (0.97 per cent) and natural gas (98.36 per cent).

The major energy inputs in the PVC production process at our Laverton site are consumption of natural gas and electricity. Largely due to the plant shutdown, the PVC resin plant reduced its energy use by approximately 11 per cent year-on-year to 404,912 gigajoules of energy, mainly natural gas. On a per tonne of PVC basis, energy consumption rose by 5.6 per cent to 3.7 gigajoules per tonne, not meeting our target for the year of less than 3.6 gigajoules per tonne.

This was the result of the prolonged plant shut down, reducing production for the year. Prior to the shut down commencing in March 2008, the plant's energy consumption per tonne of PVC produced was tracking on target.

ModWood consumed 13,680 gigajoules of energy to manufacture its products in 2007/2008, including electricity, gas and LPG. This equates to almost 4.8 gigajoules per tonne of product, compared with 3.6 gigajoules per tonne last year, the increase due in part to an increase in the density of boards produced and the introduction of product embossing which requires additional energy use. ModWood aims to reduce its energy use per unit of production as production at the factory grows and dryer efficiency improves with higher volume throughput.

## Water

### Consumption

Our total water consumption for the year was 3,293 megalitres.

CSBP's water use during the year related primarily to our production processes, particularly the cooling towers at Kwinana and Laverton.

Total water consumption at CSBP WA was 2,758 megalitres, up 13.1 per cent on last year. Our total water consumption per tonne of production was 1.76 kilolitres, equivalent to last year's figure.

The resin manufacturing process requires a significant volume of high-quality water. Since 2000/2001, AV has reduced its water consumption per unit of production by more than 27 per cent.

In 2007/2008, AV Laverton used 534,572 kilolitres of water (581,629 kilolitres in 2006/2007). This equates to 4.9 kilolitres per tonne of PVC produced, up from 4.5 kilolitres per tonne last year. The company's performance this year was not in line with its target of 4.5 kilolitres per tonne, a result of the plant shut down. However, prior to the shut down commencing in March 2008, water consumption per unit of production was at or below target each month.

ModWood uses relatively low volumes of water – a total of 306 kilolitres in 2007/2008.

### Reuse and recycling

Our Kwinana operation continues to purchase and use treated wastewater from the Kwinana Water Reclamation Plant and site wastewater is mostly discharged through the SDOOL.

Last year, AV's Laverton site embarked on a trial project to recycle its plant effluent into high-grade water, in order to reduce its intake of fresh water. We have set a long term target of zero fresh water input to the production process, instead recycling effluent in-house and purchasing recycled water from external sources when sources are available. The pilot water recycling plant is currently underway and we expect to commence commissioning a full plant in June 2009.

**CSBP Environment Advisors Katrina Summerset and Nick Burkett in front of a nitric acid plant cooling tower which uses water from the Kwinana water recycling plant.**



## Safety and Health

### Lost time

The Lost Time Injury Frequency Rate (LTIFR) for CSBP in Western Australia was 2.1 and for AV it was 17.6 (see Figure 1). During 2008, there were five LTIs (three at CSBP's Western Australian operations, two at AV), compared to three in 2007, which did not include AV. Over the last 12 months, the average lost days from injuries has significantly decreased, suggesting the severity of injuries has reduced. The LTIFR statistics include contractor hours and injuries. AV's high LTIFR is a result of incurring two LTIs within a relatively small workforce. Safety statistics are distributed and discussed by management each month and reported to our board every three months.

Performance against the safety scorecard showed an increase in safety actions against 2006/2007 through attendance at monthly safety meetings and spot observations. A decrease in actions was reported against hazard and housekeeping inspections and hazards/near misses reported.

### Number of workers compensation claims

There were 15 workers compensation claims at CSBP in Western Australia (see Figure 2).

Workplace injuries at CSBP WA decreased from 16 in 2006/2007 to 14 in 2007/2008.

Disappointingly, the number of LTIs and medical treatment injuries (MTIs) at AV increased in 2007/2008, not meeting our goal of no injuries to anyone. All workplace injuries presented to the medical centre are responded to, reported, investigated and corrective actions taken where necessary to ensure prevention of similar incidents in future.

### Hazard and risk

As part of our fitness for work programme, drug and alcohol testing was introduced in our Western Australian operations in 2006/2007. In 2007/2008 there were 830 tests with 31 positive results recorded and managed in accordance with our procedures.

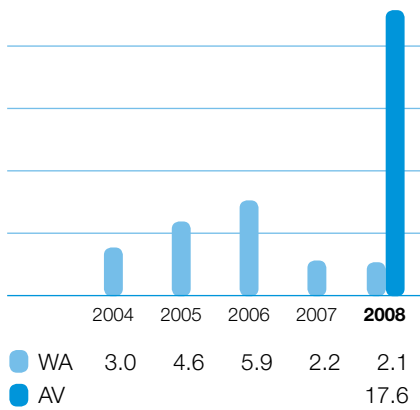
We have been working with our contractors to assist them in managing their employees that have returned positive results, and have continued the successful rehabilitation and support of our own employees.

'Take 5', a personal risk and hazard assessment initiative, was introduced during the year in Western Australia. These assessments can help identify potential risks and reduce exposure to hazards in the workplace as well as establish a behaviour of checking for risk before commencing a task. We met our completion target for these assessments, but the response was not uniform throughout the company.

Implementation of the revised permit to work system at Kwinana was completed during the year to include the use of personal and process locks for isolations to replace the previous tag system. This brings the permit to work system in line with legal requirements and industry standards.

*"Implementation of the revised permit to work system at Kwinana was completed during the year to include the use of personal and process locks for isolations to replace the previous tag system."*

**Figure 1: LTIFR\***



\*LTIFR includes employee and contractor hours and LTIs.  
 # WA reported LTIFR rate for 2005 was higher than stated in last year's report due to escalation of one injury classification to LTI following surgery.  
 1 July 2003 – 30 June 2008 (as at 30 September 2008).

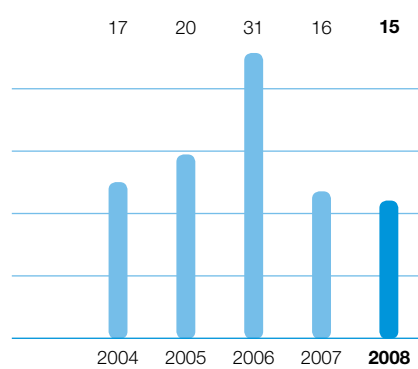
At our Kwinana site, we conducted hygiene monitoring of various substances including personal monitoring of thiocyanate, fluoride, dust and noise, as well as positional monitoring of dust, noise and asbestos.

Our Laverton site has various control measures in place, made up of both engineering features and procedural controls. Assurance that the control measures are working is provided by continuous monitoring and review.

VCM, a key process input at our PVC plant, is carcinogenic when people are exposed to high concentrations over relatively long periods of time (years). AV therefore maintains strict controls over the handling of VCM, and employees whose work may potentially expose them to VCM undergo comprehensive health monitoring using carbon tubes worn during relevant tasks or shifts to detect VCM, and annual blood tests.

The Australian Safety and Compensation Commission (ASCC) requires a standard to be maintained for employee exposures not to exceed five parts per million (ppm) over an eight-hour time-weighted period. There were no cases of this standard being exceeded.

**Figure 2: Workers compensation claims\***



\*Does not include AV data.  
 Note: Australian Vinyls had six workers compensation claims from September 2007 to June 30, 2008.

There were, however, four cases of employees being exposed to more than one ppm (time-weighted average) VCM during the year, the stringent internal exposure limit the company sets, and one short term exposure over one ppm. The average exposure for all employee samples taken during the year was 19 parts per billion (ppb). Each exposure exceeding our internal standard is investigated and corrective actions taken where required. For AV Laverton VCM exposures see figure 4.

We also monitor the ambient concentration of VCM in the plant through a number of carbon tube detectors placed at key points within the plant and at the plant fence line. This year the ambient concentration averaged 31 ppb, compared to 27 ppb last year.

**Emergency response**

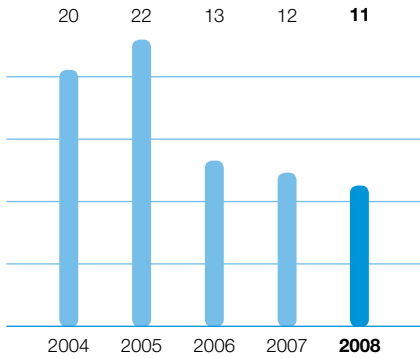
Throughout the year, we have undertaken a review of our emergency and standard operating procedures at our Western Australian operations. The emergency response team trained 40 times and the incident management team trained five times during the year.

**CSBP Process Technician Mike Perry inspects isolation locks which were introduced to our permit to work system this year.**



**Figure 3:**  
**Workplace injury frequency rate**

(including Australian Vinyls as of September 2007).



This is a measure of the frequency of all workplace injuries, not just LTIs.

A major multi-agency hazardous materials exercise for cyanide transportation was undertaken in October 2007 on one of our main transport routes in Kalgoorlie, Western Australia.

At Laverton we conducted eight emergency response exercises this year. The exercises demonstrate AV's ability to identify, resolve and clean up an incident well before the issue extends beyond the plant boundary.

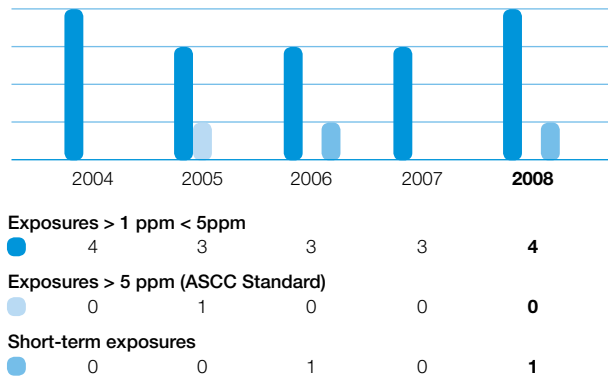
We had two on-site emergency responses in Western Australia: the first was in response to an odour at the Kwinana site which was identified as lagging exposed to higher than anticipated heat, and the second was to contain and clean up a nitric acid spill at Kwinana.

In June 2008, a loss of containment of truck diesel fuel occurred at our Laverton site. A team responded with spill kits and absorbents and contained the spill to the plant's drain system. The total fuel loss was estimated at 20 litres and contaminated soil was removed.

**Fertiliser Production's Training and Improvement Coordinator, Catherine Rowe, on the gantry in one of CSBP's Kwinana fertiliser storage facilities.**



**Figure 4:**  
**AV Laverton VCM exposures**



**Materials handling and storage**

All raw materials and manufactured products are safely stored and transported around our operations. We have detailed transport management plans for those bulk chemicals which are transported by CSBP to its customers, and detailed training and procedures for all product transport in Western Australia. AV has transport management plans and procedures for VCM and X16.

Contractors transporting our fertiliser between our distribution sites in Western Australia are subject to a contract that sets out appropriate requirements for such transport, in addition to the essential legal requirements.

Chem Alert continues to be used to manage about 1,750 chemicals approved for use at our sites and the Material Safety Data Sheet (MSDS) register is maintained as part of this system in Western Australia. AV manages its MSDSs using its document control system and the MSDSs are produced by Chem Data Services. We hold all required licenses and permits for our operations.

## Employee wellbeing

As reported in previous years, CSBP's Kwinana site has a first aid centre which is the central area for support services and programmes aimed at improving employee wellbeing.

The centre continues to offer counselling, health awareness programmes, fitness programmes and assessments, audiometric testing, specific vaccinations and immunisations, subsidies for health club memberships, health monitoring and health programmes. We also offer an annual medical check-up to employees.

Kwinana has a full-time nurse on site, and a general practitioner and a physiotherapist are in attendance several days a week.

Employees who suffer work or non-work related injury or illness have access to a full range of health support networks to ensure they are provided with the most suitable return-to-work programme.

A survey of employee preferences in relation to employee physical and mental wellbeing was conducted during the year. Data from this survey will feed into programme support development for 2008/2009.

For a number of years, our AV business has run a health programme for employees to raise individual awareness of health and wellbeing. This year, a breakfast seminar was run by the Safety, Health and Environment Committee to raise awareness of breast cancer and a training session on depression was conducted. Physiotherapy services and a gymnasium are available at Laverton for employees, and a nurse is in attendance several days a week.



## Stakeholders

The following table identifies our key stakeholders and an example of how we engage with them:

Stakeholder group	Examples of engagement
Employees	Providing information through our intranet, CSBP Connect, providing information through Intercom, Pipeline and Managing Director newsletters, holding staff barbeques hosted by our Executive Leadership Team at our Kwinana site, and weekly barbeques at AV, open briefings delivered by the Managing Director at our Kwinana and Bibra Lake sites, and business performance information delivered by AV management and family open door day at the AV site at Laverton.
Customers and sales agents	Company websites, partnerships, In Touch, Our Land and Vantage Ground newsletters, advertorials with regional print and radio, contact through Vinyl Council of Australia forums and the PVC industry Product Stewardship Programme.
Suppliers/contractors	Site tours, company websites, contact through Vinyl Council of Australia forums and the PVC industry Product Stewardship Programme.

Government agencies/authorities

Providing information to Western Australian stakeholders through the Upfront newsletter, participation in the Cyanide Management Working Group that developed the Cyanide Management handbook as part of the Australian Government's Leading Practice Sustainable Development Programme for the Mining Industry, site tours, sustainability reports, representation on WorkSafe Victoria Major Hazard Advisory Committee and Australian Safety and Compensation Council Major Hazard National Standard Technical Reference Group, representation on Department of Environment Water Heritage and Arts National Pollutant Inventory industry consultative committee and contact through Vinyl Council of Australia forums and the PVC industry Product Stewardship Programme.

Local communities

Company websites, attending the Kwinana Community and Industries Forum, contributing information to the KIC Community Information Service, responding to sponsorship requests, site tours, sustainability reports, media liaison and coverage, contact through AV's Environment Monitoring Team meetings, AV's Environment Improvement Plans and work experience placements for secondary and tertiary students at our Kwinana operation.

Industry

Member of the Australian Institute of Export, signatory to the International Cyanide Management Code, member of the Plastics and Chemicals Industries Association Inc, member of the Committee for Economic Development of Australia, member of the Fertilizer Industry Federation of Australia, member of the Kwinana Industries Council, member of the Chamber of Commerce and Industry WA (through our parent company, Wesfarmers), member of the Vinyl Council of Australia and member of Australian Industry Group.

Shareholders in parent company (Wesfarmers Limited)

Investor presentations, Wesfarmers Limited annual reports, sustainability report and a similar locally-focused AV report.

Other stakeholders (such as non-government organisations)

Site tours, sustainability reports and company websites.

## Feedback and complaints

Two complaints received by CSBP in Western Australia this year related to the dust emissions from our Kwinana site and were reported on in the 'Air (atmospheric emissions)' section. A third involved a report from BP Kwinana that foam from the ammonia tank deluge system was being blown into their waste management area, adjacent to our site.

We continued to communicate with interested parties regarding the importation of phosphate rock from the Boucraa region of Western Sahara, which is used in the manufacture of superphosphate fertiliser at our Kwinana operation.

As previously reported, no trading restrictions with Western Sahara have been imposed by the Australian Government and we have obtained both internal and external legal opinions regarding the purchase of phosphate rock from this region and



The extended plant shut down at AV's PVC plant associated with a control system upgrade had a significant effect on supply to our customers. Since the commissioning of the control system, AV has commenced a customer re-engagement process to address customer concerns regarding the plant outage and also supply chain risk mitigation strategies.

As reported earlier, ModWood received three community complaints concerning dust leakage and AV received a noise complaint.

Our AV operation invited and received feedback on its 2007 sustainability report. Comments were generally favourable but suggested improvements could be made by using less technical language.

### Community support

In Western Australia we provided support to 71 organisations in 2007/2008, either through direct financial support or through the donation of goods. In line with our sponsorship guidelines, this support was directed towards communities in which our businesses operate.

In addition to this, our Kwinana employees participated in and supported Loud Shirt Day, Movember, the Asthma Foundation Freeway Bike Hike and Australia's Greatest Morning Tea.

We continued our three-year partnership with Youth Focus. Youth Focus is a not-for-profit organisation which assists young people at risk of suicide or self-harm.

This was our third year of a five-year partnership with the Western Australian Royal Agricultural Society Hall of Fame, and we sponsored three prizes for the University of Western Australia's Faculty of Engineering, Computing and Mathematics 2007 Award Ceremony.

We also undertook our own agricultural research activities. The underlying aim of this research is to enhance economic returns for the end user by maximising nutrient uptake and improving plant productivity and quality and minimising environmental impacts from fertilisers.

We are contributing to a new collaborative project involving the CSIRO, the Department of Agriculture and Food, and the Grains and Research Development Corporation to investigate the management of wheat protein through strategic use of nitrogen fertiliser, and are involved in the implementation of the Fertiliser Action Plan for the Swan Coastal Plain and the development and evaluation of low water soluble phosphorus fertilisers in conjunction with the Department of Agriculture and Food.

We continued to engage Murdoch University to research the performance of our pilot nutrient-stripping wetland and advise on the design of its expansion.

We also continued our support of an Australian Nuffield farming scholarship.

We won two national awards: the Environmental Solution of the Year in the 2007 Endeavour Awards, and the Australian Greenhouse Office Environmental and Energy Management Award in the 2007 NAB Agribusiness Awards for Excellence.

During 2007/2008, our AV business provided approximately \$33,000 in funding to a number of local community groups and schools. A major part of this funding is AV's contribution under a three-year commitment to Western Chances Education Foundation, which assists disadvantaged young people in the western suburbs of Melbourne.



▲  
**Top: Youth Focus counsellor Michael Scott.**  
**Above: Students Cheyenne Phillips, Rhiannan Jacobs-Bolton and Tiegan Klaasen at Medina primary school's early-bird breakfast club, sponsored by CSBP.**

are satisfied that it is not in breach of international law. We have invested a significant amount of cost and resources to investigate possible technology solutions to enable a modification of our production process and use raw material (phosphate rock) from other sources, which are currently unsuitable for technical or environmental reasons. We are hopeful that we will be in a position in the next few months to decide on a feasible solution. In making any decision, we will consider the impact on our workforce and the Western Australian farming community to which we are the major supplier.

Case study

# New Kwinana Ammonium Nitrate Facilities To Reduce Particulate Emissions

*During the year we commissioned our new ammonium nitrate production facilities at Kwinana over two stages. It was a significant achievement for our business and one in which we take great pride.*

The project included a nitric acid plant, ammonium nitrate plant, a prilling plant, and a replacement prilled ammonium nitrate storage facility incorporating new security features. It has expanded our ammonium nitrate production to approximately 470,000 tonnes per annum, providing domestic supply surety to Western Australia's mining industry.

One of the aspects we are particularly proud of is the state-of-the-art scrubbing system that is an integral part of the new prilling plant. This new plant will significantly reduce particulate emissions through the removal of ammonium nitrate particulates and vaporised ammonia from waste air discharge.

It does this through the following processes:

- the prilling air scrubber removes ammonium nitrate particulates and vaporised ammonia and captures this in a diluted ammonium nitrate solution. The air is then recycled to the bottom of the prilling tower by the prilling air scrubber fans; and
- the final scrubber, a two-stage packed tower scrubber, removes ammonium nitrate particulate and ammonia from waste air streams including from the pre-dryer, dryer and the plant dust extraction systems. Once waste air has been through these processes, it is discharged through the final scrubber fan to the atmosphere. Water effluent from the scrubbers is recycled through the plant to recover ammonium nitrate.

In addition to this, world standard energy efficient design has been used to maximise waste heat recovery from the nitric acid plant and the ammonium nitrate plant. The nitric acid plant has been designed to accept new nitrous oxide emission-reduction technology when it becomes commercially viable. Nitrous oxide is a significant greenhouse gas.

Our focus on reducing particulate emissions from our new ammonium nitrate prilling plant is another demonstration of the increasing importance we place on sustainable outcomes in our business.



**CSBP Process Technician Mike Perry alongside the final scrubber at the new Kwinana ammonium nitrate facility.**



[www.csbp.com.au](http://www.csbp.com.au)

# Sustainability tips for your home



## Reduce waste

- Buy products with minimal packaging
- Use a reusable shopping bag instead of plastic bags
- Choose durable and reusable goods rather than disposable ones
- Buy products made from recycled materials
- Divide your rubbish into glass, paper and PET plastics that can be recycled
- Use organic kitchen waste in your garden
- Send old mobile phones, computers and appliances for recycling



## Reduce water use

- Install a dual flush toilet
- Have a shower instead of a bath
- Install a water-saving showerhead
- Take shorter showers (aim for four minutes)
- Buy a washing machine with 4 star water rating
- Buy a dishwasher with at least a 3.5 star water rating
- Only wash when you have a full load
- Turn taps off completely
- Fix leaky taps and plumbing



## Reduce energy use

- Sign-up for renewable energy from your electricity supplier
- Use high star-rated, energy-efficient appliances
- Switch off items with standby mode at the wall
- Insulate your home to save on heating and cooling
- Use a gas, or gas-boosted solar hot water system
- Turn down the temperature on your water heater
- Turn up the temperature on your airconditioner
- Replace old globes with energy-saving compact fluorescent light globes
- Use rechargeable batteries
- Turn off lights when you're not in the room



## Keep the air clean

- Use public transport, carpool or ride a bike
- Walk short distances instead of taking the car
- Buy the most fuel efficient car you can afford
- Avoid hard acceleration and braking when driving

**For further information and tips visit [www.climatechange.gov.au](http://www.climatechange.gov.au)**

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