



# Valuing People and the Environment

Welcome to Orica's twelfth annual Safety, Health & Environment (SH&E) Performance Report. Orica continued to make good progress on its SH&E objectives in another year of significant changes.

Integration of the Dyno business into the Orica SH&E culture is proceeding well. Incorporating learning from the former Dyno organisation will continue to drive continuous improvement which is the foundation of the Orica SH&E culture.

## All Worker Safety & Health

A fatality occurred at a distribution centre in Mackay, Queensland in the last week of Orica's ownership of Incitec Pivot Ltd (IPL). Any fatality is totally unacceptable. The company has implemented a number of

actions subsequent to the event as it relentlessly pursues its goal of no injuries to anyone, ever.

The most commonly used measure to monitor underlying safety performance is the recordable case rate. I am pleased to report that the Company's performance by this measure has continued to improve to a level where it rates amongst the best in the world. Strong safety leadership underpinned by proven systems and procedures continue to ensure that we properly control the risks associated with our activities. We all know from daily

life that we can often cut corners in order to do something more quickly or easily and get away with it most of the time. Sometimes however, things can go wrong and the consequences can be serious. Orica uses a number of lead indicators to ensure that risks are properly assessed. For example, the Company fully investigates all significant incidents and closely monitors that any resulting actions are closed out within the appropriate time period. Particular emphasis is put on promoting good behavioural safety programs throughout the organisation.

Orica's strong performance has been recognised overseas in awards presented by the Indian Ministry of Labour and Employment and the Chemicals Association of Chile.

### Community Safety

We understand clearly that we rely on the goodwill and trust of the community, and that it is not just a matter of meeting licence requirements. We are increasing our efforts to engage with the community in a transparent manner and be responsive in meeting its expectations.

It is pleasing to report that the environmental licence compliance performance of our facilities improved during the year. However, it is disappointing to report that there were three environmental prosecutions in 2005/06:

- 4 November 2005 Orica was fined A\$10,500 for the discharge of acid wastewater from the Kooragang Island, Australia facility on 15 July 2004.
- 22 November 2005 Orica was fined A\$5,113 for the loss of containment of 4,000 litres of aluminium sulphate to stormwater at the Morwell, Australia facility on 9 June 2005.
- 15 December 2005 Orica was fined A\$5,113 for air pollution by oxides of nitrogen following a product decomposition incident at a toll manufacturer's site in Heidelberg, Australia on 24 February 2005.

Orica continued to reinforce global standards during the year so that the Company does not create environmental issues for future generations.

The Company is committed to progressively cleaning up legacy issues that have resulted from past practices. This has been successfully achieved at a number of sites in recent years (eg. Cabarita, Rhodes, Cheltenham). The Botany groundwater treatment plant is now being successfully commissioned as part of Orica's commitment to clean up legacy issues on that site. Orica announced its application to export stored hexachlorobenzene (HCB) waste from operations that closed in the early 1990s.

The Company maintains close contact with both the Regulatory Authorities and the Community so that all activities are carried out in a fully transparent manner.

### Resource and Operational Sustainability

The Company is committed to minimising the impact its operations have on the environment. This means continuing the success that has been achieved over the last 15 years in reducing energy, water consumption, emissions of greenhouse gases, and waste generation. Orica's changing business portfolio presents some additional challenges in achieving the targets that were set out in 2004. The Company continually analyses its environmental impact and is developing plans to reduce its impact in all these categories.

Improved operational practices combined with best available technology implementation, have already started to have an effect. As an example, our new ammonium nitrate facility at Yarwun was designed to be a net generator of electricity.

Our total SH&E performance is monitored on a monthly basis by our Group Executive. Each member has their own personal safety plan which is their commitment to demonstrating visible leadership and commitment in this important area. Our performance continues to improve but we still have much work left to do.



### Graeme Liebelt

Managing Director and  
Chief Executive Officer  
Orica Limited



Orica continued to reinforce global standards during the year so that the Company does not create environmental issues for future generations.

# Safety, Health & Environment Policy

At Orica we believe that all work-related injuries, illnesses and environmental incidents are preventable.

We will manage all our activities with concern for people and the environment and will conduct our business for the benefit of society and without compromising the quality of life of future generations.

In particular we will:

- strive to ensure our facilities operate to the highest standards to protect our employees, contractors, neighbours and the environment
- continue to seek ways to efficiently use materials and energy

- sell only those products that can be produced, transported, stored, used and disposed of safely
- provide appropriate information and/or training on the safe use and disposal of our products to our customers and consumers
- seek to develop new or improved products and processes to improve the contribution we make to the quality of people's lives and to minimise the impact on the environment
- require every employee and contractor working for us to

comply with relevant legislation and with this policy and provide them with the necessary training

- encourage employee initiatives that contribute to a safer and improved environment at work, at home and in the community
- set challenging targets and measure progress to ensure we continuously improve our safety, health and environmental performance
- communicate openly about our activities and report progress on our safety, health and environmental performance.

## Orica's Sustainability Dimensions

The Board Environment Committee reviews and monitors community and environmental trends that influence the way in which we operate.

During the year, the Board Environment Committee reviewed Orica's global environmental standards and agreed improved standards for plant design, underground storage, stormwater and trade effluent systems.

Orica is an active participant in the Plastics and Chemicals Industry Association (PACIA) Responsible Care Program. The Responsible Care Program is an initiative of the international chemicals industry aimed at improving its safety, health and environmental performance and communicating openly with all sectors of the community.

Responsible Care requires participants to implement the six Codes of Practice defining minimum performance standards for aspects of operation, consult with the community and conduct a series of self assessment and external audits to ensure compliance with the codes.

Orica has incorporated the commitments of the Guiding Principles and the requirements of the Codes of Practice in its Safety, Health and Environment Management System. This System is adopted by all Orica operations. Orica Australia Pty Ltd is a signatory to the Guiding Principles and participates fully in the program.

Orica's commitment to the Responsible Care program also extends overseas. In 2006 Orica Chemicals Chile gained certification to the Latin America Responsible Care program and was also presented with a major Responsible Care award by the Chemicals Association of Chile (ASIQUM).

A new one-day Sustainability and Environment Workshop for Operations Managers was trialled in September with a very positive response from participants. The new format will be further developed and presented in 2007.



# Challenge 2010

The ultimate goal is for Orica to eliminate all work related injuries, illnesses, motor vehicle incidents, environmental incidents, wastes, complaints and other adverse SH&E incidents.



## challenge 2010

It is recognised that this goal will not be easily achieved and so the company has set itself performance improvement objectives with milestones it wishes to reach, and preferably pass, in a number of key SH&E areas within five years. This program commenced in 1990 with the launch of Challenge 1995 and has been renewed every five years with subsequent Challenge programs. Orica is currently working towards its Challenge 2010 goals.

In 2004, Orica met or exceeded many of the Challenge 2005 milestones.

In order to continue moving towards its goals of becoming safer, healthier and more environmentally responsible, Orica developed Challenge 2010 milestones for the remainder of this decade. The 2004 SH&E performance data is the baseline for assessing Challenge 2010 performance.

From October 2006 the Challenge 2010 baseline for Resource and Operational Sustainability data will be adjusted to exclude recently divested businesses and include the recently acquired Dyno Nobel business. New Challenge 2010 targets have been set, with the same percentage improvement hurdles for the restructured business. This change will be reflected in next year's performance report.

The Challenge 2010 milestones and relevant measures described throughout this performance report are against the original 2004 baseline and in accordance with the three elements of the company's sustainability framework:

- All Worker Safety and Health
- Community Safety
- Resource and Operational Sustainability.

## All Worker Safety and Health

### Challenge 2010 Milestones:

- **No worker fatalities.**
- **Reduce the rate of injuries and illnesses (All Worker Recordable Case Rate to <0.40).**
- **Sustain compliance with health assessment and occupational hygiene programs >99%.**

The company's safety performance improved during the year and, as measured by its primary safety metric the All Worker (ie. employees and contractors) Recordable Case Rate, achieved its best ever result on record of 0.57.

However, this improvement in our safety performance was overshadowed by the tragic death of a worker during the year. In May 2006, a contract maintenance fitter at our former Mackay, Queensland Incitec Pivot PDC site was fatally injured when he fell to the ground whilst working at height to unblock a conveyor system. A thorough investigation was completed by Incitec Pivot management, from which a number of plant integrity and mechanical structural inspection learning outcomes were shared across the company.

Overall, there were 88 all worker recordable cases (injuries and illnesses), including the single fatality, during the year compared with 120 cases for the previous

corresponding period. This represents a Recordable Case Rate of 0.57, compared to 0.85 for 2005 and continues the sustained overall downward trend of the last five years. The recordable case rate decrease represents a 33% improvement during a year when all worker hours increased by 8% due to recent acquisitions and the result is the company's best ever on record, a 22% improvement over the previous 2004 best All Worker Recordable Case Rate of 0.74.

Analysis of the recordable cases for 2006 shows the majority of significant injuries still arise from manual handling/ergonomic issues and hand injuries. Injuries from manual handling activities and ergonomic issues were associated with 33% of cases (25% in 2005) and hand injuries with 24% (18% in 2005), whilst moving/falling objects increased from 4% in 2005, to 8%. Injuries associated with moving vehicles or mobile plant, machine guarding and high-pressure equipment remained largely static at 9%, 5.7% and 2.3% respectively. It is pleasing to report a decline in injuries associated with slips, trips and falls (down from 16% in 2005, to 12.5%) and chemical exposures (down from 6% in 2005, to 2.5%).

Hygiene monitoring programs (for assessment of workplace exposures to hazardous substances, noise, etc) during 2006, showed a compliance with exposure standards of 96.9%.



The completion rate for the planned hygiene sampling programs (3,543 tests) was 95.6% and significantly influenced by the performance in the overseas Mining Services business. The annual health assessment program (9,286 tests) achieved a compliance of 97.6% to plan. The numbers of hygiene monitoring and health assessment tests conducted were consistent with last year whilst there was an overall improvement in levels of compliance to the plans.

During the year an IT based occupational health and hygiene performance monitoring system was implemented globally that enables lead indicators on performance to be tracked in real time and further enhances the company's level of occupational health assurance.

The company continued its critical focus on the reporting and investigation of serious General Learning Incidents (or 'near hits/misses'), together with the close-out and review of corrective action associated with these incidents. These incidents are situations where no serious injury or damage resulted; however the potential consequences could have been much worse. Whilst such incidents have been reported and managed at the site level for many years, they are now being reported and reviewed at the company level in order to maintain the on-going focus on low probability-high consequence events (e.g. fatalities, fires, explosions, major chemical releases, etc).

Review of these incidents for 2006 reveals that moving vehicles and mobile plant accounted for 23% of such incidents, chemicals (packaging failure, contamination, etc) accounted for 10%, while failures in clearance to work (permit to work) systems were associated with 5% (significantly decreased from 18% in 2005). Failures in equipment or processes accounted for 16%, fires/explosions were

associated with 12%, falling/moving objects accounted for 16% (increased from 8% in 2005) and incidents related to failure to follow procedures represented 8% of incidents. Comprehensive incident investigations are completed in each case and appropriate corrective actions undertaken to prevent a recurrence.

During the year, a number of specific safety and health activities were conducted focusing on key issues:

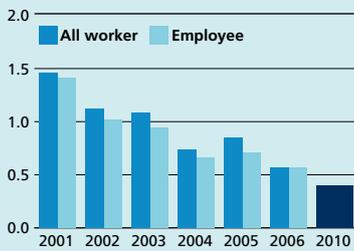
- Mining Services conducted a global safety survey, gathering responses from over 6,500 employees. The survey is being used to develop and deliver new safety activities across the global business.
- Mining Services completed a detailed due-diligence process on the ex-Dyno sites post acquisition, to identify gaps against Orica's SH&E Systems and ensure a technical review of significant risks by expert panel representatives.
- A 'Stop and Think' day was carried out across all Mining Services operations globally. Safety improvement actions were identified and implemented at each site.
- Light barriers at the entrance to the cartridge plants and new load cells in the feed house were installed to improve passive safety systems in the dynamite production division at Mining Services, Wüergendorf.
- Consumer Products continued their focus on reducing manual handling risk with the implementation of an automatic labelling and printing system for finished goods boxes at Powders, Clayton; Rocklea installed a new drum pourer with scales on the manufacturing floor; Yates installed vacuum lifters on potting mix bagging lines at Wacol and Canningvale; Dulux Trade Centres introduced pivot axle trolleys to reduce upper-body strain when moving stacks of paint cans.

- Major Consumer Products operating sites implemented a cross-business audit program of common SH&E procedures. The program was so successful that sites have asked to extend the program next year.
- The UAP Behavioural Safety program was re-launched across all Chemical Services sites in June.
- The Laverton North Chlorine site developed a new safety banner that is now on display at both the Laverton and Botany sites.
- Chemnet have participated in a Corporate Small Sites SH&E Management System Project designed to help apply Orica's SH&E requirements to smaller and remote operations.

The Indian Explosives business won the prestigious National Safety Award from the Ministry of Labour and Employment for the Lowest Accident Frequency Rate in 2005, in the category of Manufacturer of Chemicals and Chemical Products.

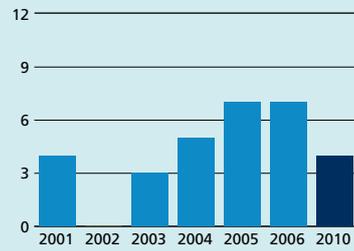
The Orica Chemicals Chile business gained certification to the Latin America Responsible Care program and was also presented with a major Responsible Care award by the Chemicals Association of Chile (ASIQUM), an indication of the excellent progress being made implementing Orica SH&E systems in Latin America.

Mining Services conducted a global safety survey, gathering responses from over 6,500 employees. The survey is being used to develop and deliver new safety activities across the global business.



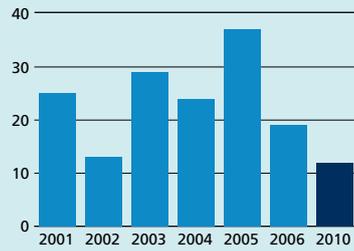
### All Worker Recordable Case Rate

The Recordable Case Rate is the number of injuries and illnesses per 200,000 hours worked (US OSHA system). This is equivalent to the hours worked by 100 people in a year. The All Worker Recordable Case Rate includes both employees and contractors. From 2004, it was adopted as the primary safety measure for the workforce engaged by the company at its operating sites. The All Worker Recordable Case Rate for 2006 was 0.57. The Challenge 2010 milestone is 0.40. The Employee Recordable Case Rate is also shown for comparison (0.57 in 2006).



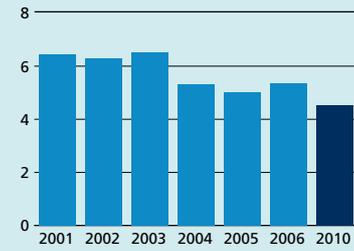
### Site Losses of Containment

Serious site losses of containment are unplanned releases of a material (from a vessel, tank, package, etc) on a company site that cause injury, damage or concern to the surrounding community or environment. For 2006, the number was seven. There were no injuries associated with these incidents.



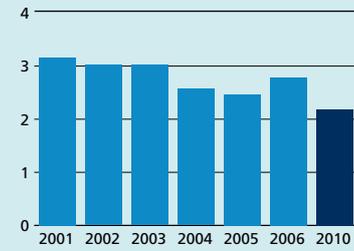
### Distribution Incidents

Serious distribution incidents are incidents involving Orica product during transport or storage, prior to delivery to the customer. For 2006, the number was 18. There were three fatalities to members of the public associated with these incidents and twelve injuries. 13 of the incidents resulted in product spillage.



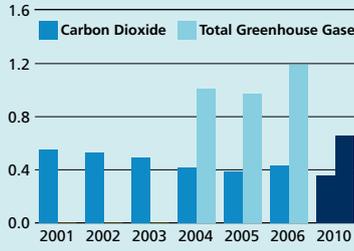
### Energy Consumption per Tonne of Production (GJ/te)

Energy consumption in 2006 was 5.27 gigajoules per tonne of production, a 0.6% decrease from 2004 baseline. The Challenge 2010 milestone is a 15% reduction.



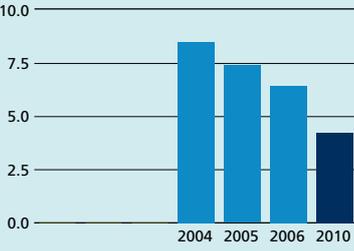
### Water Consumption per Tonne of Production (kL/te)

Water consumption in 2006 was 2.80 kilolitres per tonne of production, a 9.3% increase from 2004 baseline. The Challenge 2010 milestone is a 15% reduction.



### Greenhouse Gas Emissions per Tonne of Production (te/te)

Total Greenhouse Gas Emissions comprise carbon dioxide from energy consumption and nitrous oxide from nitric acid manufacture. The company has monitored carbon dioxide emissions for several years, and from 2004 has also included nitrous oxide. Total greenhouse gas emissions for 2006 were 1.20 tonnes per tonne of production, a 19.0% increase from 2004 baseline. The Challenge 2010 milestone is a 35% reduction. Carbon dioxide emissions are also shown for comparison.



### Waste Generation per Tonne of Production (kg/te)

Waste generation in 2006 was 6.63 kilogram per tonne of production. This was a 22.0% reduction from 2004 when waste reporting commenced. The Challenge 2010 target is a 50% reduction.

■ Challenge 2010 Milestone

## Community Safety

### Challenge 2010 Milestones:

- **No distribution incident fatalities.**
- **Reduce the number of serious distribution incidents involving our products (<12 Category 2+ incidents per year).**
- **Reduce the number of serious site losses of containment (<4 Category 2+ incidents per year).**
- **No environmental licence non-compliances.**

### Distribution Incidents

Distribution incident performance improved significantly during 2006, with a total of 18 serious (Category 2+) incidents during the year, compared with 37 in 2005 and 24 in 2004 corresponding periods. This represents a 48% decrease over the past year. Tragically, three of these incidents resulted in fatalities to members of the public, the same number as the previous corresponding period. The three fatal incidents were:

- 21 November 2005; a transport carrier's truck carrying 16 tonnes of ammonium nitrate premix in Raigarh (India) collided with an on-coming tractor-trailer unit and resulted in the death of a member of the public travelling on the trailer. The contract driver received multiple leg fractures. The 300 kg of spilt product was fully recovered. The primary cause was the failure of a steering wheel tie rod and subsequent loss of control of the truck.
- 15 February 2006; a contractor's B-double truck carrying liquid ammonia collided with a van on the interstate highway at Gympie (Australia), resulting in the death of one and serious injury to two other members of the public. The incident occurred when the van suddenly braked for no apparent reason, and the car immediately behind and the following B-double took evasive action. In doing so the truck clipped the rear of the van shunting it directly into the path of an on-coming truck. Both truck drivers were not injured and there was no loss of containment.
- 21 August 2006; an Orica bulk emulsion truck was involved in a two vehicle accident on a two lane road in rural Georgia (USA). A member of the public was tragically killed and the Orica driver was also injured in the accident. The driver of the vehicle indicated to turn right off the road but instead turned left into the path of the Orica truck following behind. The driver was killed and a fellow passenger in the vehicle was also seriously injured. The truck was seriously damaged but there was no loss of containment of product.

Of the 18 recorded distribution incidents during 2006, ten incidents occurred in Australia/New Zealand, two in Asia and six in the Americas. Fifteen incidents occurred on public roads and three on railways. Thirteen of the recorded distribution incidents involved spillage of product, which was cleaned up in each case where possible and any contaminated soil removed. In addition to the three fatalities, there were twelve other injuries associated with these distribution incidents during 2006, compared with eight during the previous corresponding period. These injuries included limb fractures, internal injuries, concussion and bruising. The affected personnel included one Orica employee driver, four contractor drivers and seven members of the public.

Whilst any distribution incident is disappointing, this year's much improved result was extremely pleasing given the efforts made in recent times around the selection, training and management of both carriers and our own vehicle fleets. As stated last year, the company is determined to continually improve its distribution safety performance in order to achieve the Challenge 2010 milestone and undertook an internal study to review distribution incidents. This review has been completed and the company is currently implementing the recommendations made for improving performance. These included the full revision of the 'Selection & Management of Transport and Storage Contractors' safety procedure, which has been completed, and the outcomes are being implemented within the business groups.

### Site Losses of Containment

There were seven serious site losses of containment recorded in 2006, the same number as the previous year. One minor injury to an employee occurred during the release of aqueous ammonia to atmosphere from a scrubber vent stack most of which was recovered from the bund. The other incident types included loss of nitric acid from a pipe flange to a bund (mostly recovered), spillage of nitrates and effluent to stormwater drains, diesel fuel leakage from an underground pipe, ammonium nitrate prill spill to ground (fully recovered) during a container unloading, and 3 tonnes of emulsion overflowed when loading a bulk tank (mostly recovered).

Incident investigations were completed in each case and appropriate corrective actions implemented to prevent a recurrence. Sites also record and investigate all minor leaks of product that are quickly brought under control.



## challenge 2010

### Environmental Licence Compliance, Awards and Achievement

During 2006, there was a 41% improvement in environmental licence compliance. In excess of 31,800 tests were completed across the company's operations in order to assess compliance of emissions (e.g. air, water, noise) with environmental licences and regulations. Of these tests there were 45 environment non-compliances detected during 2006 (compared with 76 for 2005), representing a compliance rate of >99.8%.

There were three environmental prosecutions or significant fines during 2006. Also, two penalty notices were issued by a regulatory authority arising from a single VOC emission excursion.

The environmental prosecutions to report in 2005/06 were:

- 4 November 2005 fined; A\$10,500 for the discharge of acid wastewater into the Hunter River from the Kooragang Island, Australia facility on 15 July 2004.

Sustainability is about simultaneously enhancing both what makes life possible (environmental health) and what makes life worth living (social well-being), while creating shareholder and societal value (economic prosperity).

- 22 November 2005 fined; A\$5,113 for the loss of containment of 4,000 litres of aluminium sulphate to stormwater at the Morwell, Australia facility on 9 June 2005.
- 15 December 2005 fined; A\$5,113 for air pollution by oxides of nitrogen following decomposition of several drums of a metal pre-treatment product at a toll manufacturer's site in Heidelberg, Australia on 24 February 2005.

The company sincerely regrets what occurred and failed not only the community but also its own standards. Investment in capital projects, including abatement measures, has been undertaken together with the identification and implementation of corrective actions in each case to prevent recurrence.

A number of projects to improve environmental performance were also initiated in 2005, including:

- A cross-functional Nitrous Oxide Abatement Workgroup has gained approval for trialling a catalytic destruction process at two nitric acid plants in the Philippines and Thailand.
- The Monclova, Mexico plant is commissioning an absorption column aimed at reducing emissions of nitrogen oxides by 50%.
- The Powder Coatings Australia business and CSIRO have been successful in obtaining a A\$440,000 grant from the Victorian Government's Sustainability Fund to develop new solvent free powder coating and surface treatment technologies for the automotive plastics industry. The long-term aim of this project is to eliminate 1,500 tonnes of solid waste and 1.5 million litres of solvent waste from the automotive industry by developing solvent free technologies and increasing coating transfer from 30% to 100%.
- Powder Coatings New Zealand was awarded Gold Enviromark Certification by Landcare Research New Zealand for recognition of their ongoing performance in a number of areas including: safety, health and environmental legal compliance; reducing environmental risk; increasing resource efficiency and improving standing with community and other stakeholders.
- Improved management of sulphur dioxide emissions at Port Kembla, NSW, was addressed through closure of the SMBS plant, plant process adjustments and procedural reviews.

- Separation of site effluent and stormwater systems at Mt Maunganui, New Zealand.
- A design review of scrubber systems was initiated, in consultation with local environmental authorities, at Morrinsville, New Zealand.
- Funding for a joint project with City West Water has been secured to develop a new engineering solution to remove salt from effluent at the Chlorine plant at Laverton. The project will commence in 2007 and will help City West Water use the effluent for irrigation and other non-drinking applications.
- Dulux Rocklea and Boral Bricks progressed their plan to process 4,000 litres of waste water from Rocklea into production of Boral Bricks during November 2006. Analysis of test bricks from earlier small-scale trials was completed in Germany and review of the results revealed that there were no safety or environmental concerns associated with the process.

### Emergency Response

The company's Emergency Response Service (ERS) responded to 315 calls, including 16 Incitec Pivot Limited calls prior to separation, in the Australasian region relating to the company's products and facilities during the 2006 year. This compares with 368 calls in the previous corresponding period, and 316 in the 2004 year. The decrease in call numbers was largely due to a significant reduction in incidents from home users of consumer products together with fertiliser related facility and usage calls.

Of the 315 emergency calls during the year, 55% related to human exposures (mostly paint and DIY product exposures in the home), 12% to site losses of containment, 12% to distribution incidents and 21% to other incident types. The ERS service is also provided to over a hundred external clients at a contracted fee for service.

Outside of Australia and New Zealand the Orica businesses take direct responsibility for their emergency response.

The ERS was again announced as the winner of both the Victorian and Australian Gold Award in the 2006 Australian Quality Awards provided by the Australian Organisation for Quality (AOQ). This is an outstanding achievement for the small, dedicated team that continues to operate the service 24 hours per day.

### Community Complaints

Major sites are required to develop good working relationships with their neighbouring communities. This includes Site Community SH&E Reports and formal community relations plans. All sites are required to record and address community complaints with an objective of eliminating all complaints by 2010.

In the past three years the number of complaints reported by all sites has increased from six justified complaints in 2004, and 27 in 2005, to 33 in 2006 year. This increase is attributed to better capture of complaints and not to a deterioration in performance. Each complaint received is investigated, causes are identified and actions taken to eliminate further community concern.

Underlying trends are being identified to ensure progress towards eliminating all complaints by 2010.

### Product Stewardship

The safety of our products and facilities with our customers and the general community is an integral component of the company's overall sustainability framework. Good product stewardship remains an important objective for Orica.

A review of product stewardship practice was undertaken in 2006. This review confirmed the importance of achieving and maintaining an overall Product Stewardship Self-Assessment Score of >90% and highlighted the benefits of several



Product Stewardship achievements made over the past few years, including:

- The ammonia safety program – Ammsafe
- The chlorine safety program – Safeguard
- The removal of security sensitive ammonium nitrate from the Australian fertiliser market, and
- Signatory to the International Cyanide Management Code

The company's overall product stewardship performance is on a par with previous years with a number of recently acquired businesses making significant improvements in their self-assessment score. Some of the achievements during 2006 included:

- Dulux Trade launched a range of low-VOC, 100% greenhouse neutral paint products (Enviro2™ and Aquaname!™) to the trade market in February 2006. The products have been certified as 'Greenhouse Friendly' within Australia, meaning that all greenhouse gas emissions associated with production, use and disposal is fully off-set by approved greenhouse gas abatement activities. The products were finalists in the PACIA Sustainability Awards and the Housing Industry Association (HIA) GreenSmart Awards.
- In April 2006 Dulux launched Paintback™, a 12 month trial run in conjunction with government and other industry leaders to collect and recycle used paint pails. Paint collected from the returned cans is recycled to become fence paint. During the trial Dulux aims to produce three 20,000 litre batches using the recycled material for sale within Australia. Paint unable to be recycled is used as fuel and the steel pails are crushed and sent to a recycling facility. The program will be assessed at the end of the trial to determine its success and future implementation.

- Complementing the 'Envirowash™' wash-up system for painters on medium to large building sites that was released last year, Dulux Trade also introduced a smaller (160L) Enviro-Solutions kit for cleaning up brushes on smaller sites.
- Powder Coatings, Clayton have commenced a waste powders fines management process which has processed over 20 tonnes powder fines waste from the Clayton operation to date. Over 6 tonnes of processed powder fine waste has been incorporated into recycled product for resale. Reprocessing fines is saving Clayton Operation A\$2500 per month in waste disposal cost or (50% of total waste disposal cost). The project is scaling up to handle customer waste and develop a low-grade end product.
- The Cyanide business progressed its compliance to the International Cyanide Management Code with two audits during the year and a number of actions taken to ensure compliance with requirements. Certification of the Yarwun manufacturing site is expected in 2007.
- Semi quantitative risk assessments of chlorine and cyanide transport and distribution supply to customers were undertaken.
- Orica Watercare launched Landguard™ earlier this year and has subsequently received the 2006 PACIA Environment Award and the 2004/05 DuPont Innovation Award. Landguard™ is a rapid and cost effective solution for the on-site management of pesticide residues in agricultural areas. The technology is based on enzymes that rapidly degrade target pesticide molecules into by-products of significantly reduced toxicity which are more readily degradable than the parent pesticide. Landguard™ minimises the harmful effect pesticides have on land, neighbouring waterways and catchments and on the wider community through reducing toxicity.



## challenge 2010

### Community Relations

Orica has operating sites in many different parts of the world. Some of these sites are surrounded by homes, others by industrial facilities, mining sites or farmland. Our aim is not to impact in an adverse way on our neighbours and the natural environment.

Orica is a signatory to the Australian Responsible Care Community Right to Know Code of Practice and its requirements are incorporated in the company's SH&E Management System. Major sites are expected to communicate their safety, health and environment performance to their neighbours on a regular basis. Some examples of activities Orica employees and businesses have undertaken in the community during the year include:

- Dulux Paints and a team from a major hardware customer, Bunnings, helped paint a rainforest mural at a local public school in Matraville, Sydney. The mural was designed by students and painted by parents, teachers and the Bunnings team.
- For the past six years Yates, New Zealand has been encouraging local children to get active in the garden through the 'Cool Kids Grow' initiative and 'Trees For Survival' charity.



< Christine Cussen (third from right) Dulux Innovation and Technology Manager with other Paintback™ partners at the Paintback™ launch at the Vermont South Bunnings store in April 2006.

- The Orica Deer Park Consultative Committee (ODPCC) was established in 2001 and provides a forum for local residents to meet to discuss any issues in relation to the site. The committee supports the community by conducting a work experience program for local secondary and tertiary students, sponsoring community initiatives such as the local secondary school girl's soccer team, the local college's annual awards night and donating funds to the Heartwell Fitness Program to assist ill children in the area.
- A team from Orica's Botany site is helping to care for the local river system by working with primary and secondary school children to protect the nearby Cooks River and Botany Bay. Orica is a major sponsor of Oz Green (Global Rivers and Environmental Network).

### Legacy Issues

The company continued its program of managing legacy issues associated with historical operations at a number of sites, and remains committed to achieving the results expected by regulatory authorities and the community. Key activities during 2006 included:

- Work continued on the clean-up of groundwater at Botany, NSW. The full-scale Groundwater Treatment Plant (GTP) is being commissioned to effectively treat contaminated water.
- After an extensive search for a suitable regional location to treat the HCB (hexachlorobenzene) waste stored at Botany, in accordance with the 2004 decision of the NSW Government's Independent Review Panel, the company has concluded that it is highly unlikely that a suitable site can be found. As a result the company has applied for an export licence to dispose of the waste in Germany. The waste is planned to be destroyed in High Temperature Incinerators, using proven technology that meets the most stringent international standards. The material continues to be safely and securely stored until government authorities make a decision on the export licence.
- The investigation into soil and groundwater contamination is approaching completion at Villawood, NSW. Remediation plans are being developed and it is hoped to obtain approval for a remediation plan later in 2007.

- Clean up of lead contaminated sediment in Homebush Bay adjacent to Rhodes, NSW, has been completed. The sediment has been deposited in the landfill 'mono-cell' used for disposal of the land-based material and this will mark the end of the Rhodes project.
- At Yarraville, Victoria, an environmental audit of the site is approaching its conclusion and trials on remediation technologies have been conducted. Demolition of redundant buildings is nearing completion. Orica and a number of local companies contributed to an EPA audit of the lower Maribyrnong River.
- At the Deer Park, Victoria site Orica has formalised its environmental investigations into a statutory process and has appointed an auditor. Issues with the site relate mainly to nitrates from past manufacturing of explosives.
- During the year the company announced the planned closure of the Seneca, North America, site. Remediation of the site is planned as an integral component of the site closure plans.
- As well as the above sites, Orica is actively investigating, and where appropriate remediating, environmental concerns at a number of sites including Port Kembla, NSW, PMA Victoria (with its JV partner), Padstow, NSW, and a number of smaller sites.

## Resource and Operational Sustainability

### Challenge 2010 Milestones:

- **Reduce energy consumption (>15% per tonne of production).**
- **Reduce emissions of greenhouse gases (>35% per tonne of production comprising carbon dioxide >15%, and nitrous oxide >50%).**
- **Reduce water consumption (>15% per tonne of production).**
- **Reduce waste generation (>50% per tonne of production).**

Production volumes were 10% lower than the 2004 baseline, primarily due to the divestment of IPL mid way through the year. During 2006, the company made good progress in reducing waste generated. Our energy consumption remained at a level similar to the 2004 baseline year, while water consumption and the emission of greenhouse gases increased. This is the result of a change in the product mix.

### Energy Consumption

The company's energy consumption during the year was 5.27 gigajoules per tonne of production, a 0.6% decrease compared to the 2004 baseline year. A number of factors contributed to this result including the sale of IPL and manufacturing improvements at Kooragang Island, Australia. IPL was a relatively low energy intensive business, hence the divestment increased energy consumption per tonne of production from May.

Every five years, Orica's Ammonia Plant at Kooragang Island undergoes what is known as a 'turnaround' for essential maintenance and vessel inspections required by legislation. The team on site took advantage of this opportunity to improve energy efficiency by a target of 1.35 gigajoules per tonne of ammonia produced. Two key improvements delivered a reduction in energy consumption of 2.00 gigajoules per tonne, exceeding the target by almost 50%. The first initiative optimised the steam driven cooling water pump, reducing the amount of steam required from 15 to 6 tonnes per hour. The second initiative involved the installation of an ammonia scrubber designed to remove impurities such as carbon monoxide and moisture from the feed gas. This freed capacity in the two major compressors and reduced the amount of energy required to drive them. Put into context, the amount of energy saved daily is equivalent to powering 28,700 Australian homes.

Kooragang Island is also working closely with the Australian Government to help develop the Energy Efficiency Opportunities (EEO) framework that became effective in July 2006 for companies using over 0.5 petajoules of energy per year. The scheme was developed to assist companies through a rigorous process of identification and implementation of cost effective energy efficiency projects.

### Greenhouse Gas Emissions

The company's total greenhouse gas emissions (comprising carbon dioxide and nitrous oxide) during the year were 1.20 tonnes per tonne of production, representing a 19.0% increase from the 2004 baseline year. Emissions of carbon dioxide were equivalent to the 2004 baseline.

Five Orica facilities throughout the world manufacture nitric acid. The largest production sites are located in Australia at Kooragang Island, New South Wales and Yarwun, Queensland.

The amount of nitrous oxide emitted reflects production of nitric acid, and as production has increased since 2005, so have resultant emissions.

A new nitric acid plant was commissioned at Yarwun in 2006, significantly increasing production capacity at the site.

In 2006 the company changed the standard for tool of trade vehicles in Australia from petrol to liquified petroleum gas (LPG). As well as reducing the annual running cost of the car fleet, justification for the change was driven by environmental reasoning. Carbon dioxide emissions from LPG fuelled vehicles are 20% lower than petrol vehicles, and with some 2,000 company cars, light trucks and vans in service, there is potential for reducing greenhouse gas emissions by 500 tonnes per year as the current fleet is replaced. To date, 180 petrol fuelled company vehicles have been replaced with LPG fuelled vehicles.

### Water Consumption

The company's water consumption during the year was 2.80 kilolitres per tonne of production, representing an increase of 9.3% from the 2004 baseline year.

This is due to increased cooling water requirements associated with increased production of nitric acid.

Orica Mining Services in Weihai, China, has reduced their water consumption per tonne of production by more than 53% compared to 2005, saving in the order of 2,000 kilolitres per year. This significant reduction was the result of the site team recognising leaking water supply pipes and repairing and replacing sections throughout the system.

### Waste Generation

The company's waste generation in 2006 was 6.63 tonnes per kilotonne of production, representing a 22.0% decrease from the 2004 baseline year.

Waste is reported under five categories: waste sent to landfill, destroyed or treated on site, recycled, reused, and stored on site. Since 2004 the company's focus for improvement initiatives has been primarily on energy efficiency, but in the coming year particular attention will be paid to waste reduction projects and the consistency of data.

In 2006, 4.3% of Orica's total waste was reused and 37.3% was recycled. One major contributor to this high recycling figure was Orica Powder Coatings located in Victoria, Australia.

### Sustainability

Orica recognises that sustainable businesses will find ways to meet present needs with far fewer impacts than are currently created. In other words, we need to find ways to significantly reduce our footprint on the planet. This is the innovative challenge and opportunity open to businesses able to leverage their knowledge, values and position in the supply chain. While some of the improvements will come from within our operations, we see the multiplier coming from innovations that depend on engaging suppliers and customers.

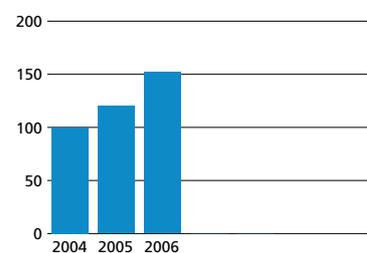
During 2005, the company created a methodology for monitoring sustainability progress. The methodology comprises an index represented by the ratio of Value Added (Gross Margin) and Impact (resource consumption, waste generation or emissions). While still in a trial phase, the Index has prompted discussion on exactly where the boundaries for 'impacts' and 'value added' should be drawn and what happens when more production is out-sourced or imported from overseas.



## challenge 2010

The Index was factored to 100 for the 2004 baseline year and the company has been monitoring progress each month. At the end of the 2006 year the Index was 152 (see graph below).

In 2006 Orica appointed a Sustainability Manager to help capture both the potential for more efficient operation and opportunities for sustainable growth that lie in a deeper understanding of our social and environmental footprint. In addition, this role will help Orica decide whether sustainability should be integrated into Orica's corporate strategy, how Orica's SH&E Policy and Vision may need to change to reflect our evolving understanding of the issues and what actions Orica should be taking in relation to specific concerns such as climate change and regional water shortages.



Company's Sustainability Index for 2004, 2005, 2006. No target has been set for 2010.



< Turnover Process Design Team members (from left) Ajay Joshi, Peter McGrath, Ved Gupta and Scott Sandhoff showcasing the new ammonia scrubber responsible for delivering part of the overall energy reduction.

> Recycled Powder Fines, Dulux Powders, Clayton



# About Orica

Orica is one of the leading publicly-owned companies in Australia, supplying an extensive range of products and value-adding services to customers in around 100 different countries.

We have evolved from a supplier of explosives to the Victorian gold fields in 19th Century Australia into a multi-billion dollar company that is currently ranked as one of the top 40 companies listed on the Australian Stock Exchange based on market capitalisation.

Orica's proud traditions of leadership, innovation, quality and safety are shared by our 13,000 people located in around 50 countries across six continents. Upon completion of the recently-announced acquisition of Minova, the number of Orica's employees will increase to more than 14,000.

Orica turns science into the solutions that satisfy basic human needs. Our products, brands and services can be trusted for their reliability, range and quality. Each of our businesses – Orica Mining Services, Chemnet, Chemical Services and Orica Consumer Products - is the leader in its chosen market and enjoys a world class reputation.

At Orica, we care about people and the environment. We acknowledge our environmental, social and community obligations. Meeting those obligations is important to us, our customers and the community, and contributes to our aim to conduct our business sustainably.

## Learn more at [www.orica.com](http://www.orica.com)

Visit [www.orica.com](http://www.orica.com) for our latest Safety, Health and Environment reports and documents. We constantly update our website to provide you quick and easy access to all our information.

Follow the links under 'Safety, Health and Environment' to see our complete Orica SH&E Policy, 19 SH&E Standards, Strategy & Management System and more. Listed are documents available for you at our website.

We look forward to your feedback.

## Feedback

Email us any comments via [corpshe@orica.com](mailto:corpshe@orica.com) or by contacting us directly.

Telephone +61 3 9665 7111

## Other documents

- SH&E Policy
- SH&E Standards
- SH&E Strategy
- Sustainability Data
- SH&E Report
- Site Reports
- Current Performance
- Material Safety Data Sheets
- Other Information
  - Challenge 2010
  - Summary of Chemical Releases from Orica Operations
  - Product Stewardship
  - Land and Groundwater Issues
  - Greenhouse Gases
  - Emergency Response Service
  - Coatings Care
  - Responsible Care
  - Health and Hygiene



## Orica Limited

ABN 24 004 145 868

Registered address and head-office:

1 Nicholson Street

East Melbourne Victoria 3002

Australia

Postal address:

GPO Box 4311

Melbourne Victoria 3001

Telephone: +613 9665 7111

Facsimile: +613 9665 7937

Email: [companyinfo@orica.com](mailto:companyinfo@orica.com)

Website: [www.orica.com](http://www.orica.com)

## Paper used for this report

The paper used for this Safety, Health & Environment Performance Report has a 50% recycled fibre content.