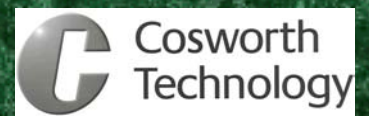


2002

# environmental statement



Northampton, Wellingborough & Worcester Operations

Raising the standard of Environmental Performance

## **1.0 Introduction**

Cosworth Technology Environmental Statement  
Company Overview  
Site Description and Activities  
Site Environmental Issues

## **2.0 Environmental Organisation and Personnel**

Environmental Organisation  
Personnel Training  
Environmental Qualifications  
Communications  
Suppliers  
Contractors  
Environmental Concerns

## **3.0 Environmental Management System**

Environmental Policy Statement  
Environmental Management System  
Environmental Objectives 2002  
Other Factors Regarding Environmental Performance  
Environmental Objectives 2003

## **4.0 Environmental Monitoring Data**

2002 Part B Authorisation Monitoring Results (Worcester)  
Waste Disposal and Recycling  
Energy Usage

## **5.0 Environmental Contacts**

## 1. Introduction

### Environmental Statement

Cosworth Technology Ltd is committed to managing its environmental impacts, both to the local and global environment, and to the continuous improvement of its environmental performance. This is now our third published Environmental Statement.

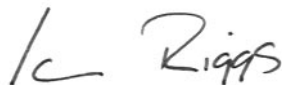
To achieve this aim Cosworth Technology Ltd has implemented an Environmental Management System (EMS) in accordance with the International Management Standard ISO14001 and the European Environmental Directive (761/2001), the Eco-Management and Audit Scheme (EMAS) at all UK sites.

The EMS defines the working procedures and controls necessary to manage the environmental aspects of the company's activities and provides the framework for continual improvement through the setting of Targets and Objectives.

The EMAS scheme requires that participating organisations provide environmental information via an environmental statement. The statement demonstrates the impact of the environmental system at Cosworth Technology and is intended to promote its benefits to other organisations. The statement has been validated by SGS Yarsley Limited and provides credible environmental performance information to the public.

The effective implementation of this system is only possible through the total involvement and commitment of all Cosworth Technology employees, customers, suppliers, contractors and regulatory bodies.

Readers can be assured that this statement is complete, containing information on all relevant significant aspects, and that the data presented are reliable, providing transparency to our environmental performance.



Ian Riggs  
Group Quality Director  
January 2003

## Company Overview

Cosworth Technology is an independent consultancy in the field of powertrain engineering. It is unique in its ability to offer fully integrated powertrain solutions through expertise and experience in the design, development and manufacture of high performance engines.

The company was originally founded in 1958 by Mike COStin and Keith DuckWORTH, hence COSWORTH. Audi acquired Cosworth in September 1998. The firm sold the racing division to Ford, while grouping engineering, castings, and the manufacturing divisions together under the name Cosworth Technology Ltd.

The Cosworth Technology Group has three locations in the United Kingdom – Northampton (engineering), Wellingborough (manufacturing) and Worcester (castings) – and a fourth in Novi, Michigan, USA (engineering).

Cosworth Technology's core capabilities include engine design and development, casting, engine assembly, CNC machining, test, installation, calibration and diagnostics. The company also has experience in electronic hardware design and development, including vehicle data communications and recorders.

Cosworth Technology's declared scope of activity is the design and development of road engines and associated components at Northampton, the manufacture of vehicle engines and components at Wellingborough, and the manufacture of aluminium castings for the automotive and allied industries, at Worcester.



## The Northampton Site

### Site Description



Cosworth Technology's Northampton site serves as company headquarters and is home to the engineering, design and development arm of the business. The company has been based in the town since 1964. Facilities on site include a large vehicle workshop, an engine build shop, test cells, and an emissions and driveability centre.

The St James Mill area itself is a light industrial estate, close to a tributary of the River Nene and close to the town's railway station.

### Site Activities

The Northampton site covers 6,648 square meters and employs 192 people. Engineering work completed on site includes, engine design and analysis, engine development and testing, vehicle installation engineering and engine management system application.

There are an additional 49 people employed by Head Office based at the Northampton site.



Cosworth Technology's Engineering operation has the unique ability of taking engine programmes from concept through to production, or any of the intermediate stages. Existing engines are further developed to meet future legislative and marketing needs. The Emissions Driveability Centre (EDC) provides comprehensive independent calibration facilities. It incorporates temperature controlled rolling road and transient dynamometer facilities to optimise vehicle driveability, emissions legislation compatibility and fuel consumption development, whilst reducing programme lead times and specialised powertrain control system development.

## The Wellingborough Site

### Site Description



Cosworth Technology's engine assembly and machining facility has been in Wellingborough since 1984, and situated at this site since 1993. The production facility consists of one large building containing machining and assembly lines, test cells and office areas. A second facility was opened during 2002 to handle logistics for the main plant.

Both facilities are situated on the Park Farm South Industrial Estate just outside the town of Wellingborough.

### Site Activities

The Wellingborough site covers 7,047 square meters and employs 184 people. The plant currently consists of two engine assembly lines, forty CNC machining centres, six engine hot-test stands, three engine dynos and four coordinate measuring machines.

#### Powertrain Assembly

Dedicated assembly lines are established for each product family; these incorporate all the necessary equipment, including test and inspection to assemble whole engine units. Common-build trolleys are used extensively, which gives even greater flexibility.

Cosworth Technology also has the facilities to test the completed engine units, including hot-testing, full dyno audit, break-in testing and power curve.



#### Component Machining



Cosworth Technology has experience of machining both aluminum and cast iron cylinder heads and blocks. Expertise covers a range of engine types, including: V12 cylinder heads and blocks, V6 cylinder heads and V8 5 valve cylinder heads.

The plant at Wellingborough operates as a low to medium volume, niche-manufacturing facility. Stand alone CNC machining centres are arranged as dedicated production cells and used to offer cost effectiveness and flexibility.

Customers include Audi, Audi Quattro, Aston Martin and Ford.

## The Worcester Site

### Site Description



Cosworth Technology first built a foundry at Worcester back in 1979, as a means to provide high quality castings for its race engines, although as technology moves on, this high quality is now desirable in road cars as well. Today, CT has two foundries based on the outskirts of Worcester in an out-of-town business park, 7½ miles from the Malvern Hills.

One foundry concentrates on specialist, low volume output for racing engines and V12 road engines and the other is a large, high volume production foundry.

During 2002 the ceramics department, which had previously been located in Barbourne, Worcester, was relocated to the production foundry. They produce launders for the foundry process.

### Site Activities

The two Worcester sites cover a total of 14,634 square metres and jointly employ 358 people.

The difference between the Cosworth Process and most other casting processes is the use of an electromagnetic pump to force the purest molten aluminium from the middle of a holding vessel, into the mould. The mould itself is made



from rare zircon sand sourced from Australia. After pumping the molten metal in the mould pack, it is rotated 180 degrees, which ensures even cooling. The zircon sand used to make the moulds is reclaimed.



The Foundry also utilises CNC machining centres to carry out fettling and preliminary machining of the castings.

Customers include Audi Group, Rover, and Aston Martin Lagonda Ltd.

## Environmental Issues

Through the implementation of ISO 14001, Cosworth Technology has established procedures for identification, classification, assessment and review of its environmental aspects. These aspects are compiled in a register of environmental aspects, which are evaluated to determine those that have a significant impact on the environment. The register is maintained and reviewed by the site Environmental Champion, and creates a basis on which Environmental Management Programmes are developed.

Cosworth Technology is conscious of the regulatory requirements that apply to its activities and has taken necessary measures to ensure compliance with these requirements. Environmental legislation is constantly changing and in response, the company has developed a Register of Environmental Regulations, which is reviewed every quarter, updated and communicated to relevant personnel.

An annual schedule of internal audits are carried out to assess environmental performance and identify areas for improvements.

A summary of the significant and relevant issues at each of the sites is given below:

## Emissions

Emissions to air are derived mainly from the thermal sand reclamation system. These emissions include total particulate matter, VOC's, triethyleamine and copper particulates. They are subject to monitoring as defined within the two Part B authorisations issued by Worcester City Council. The authorisations require that the stack emissions are assessed once a year and that total particulate matter; acid circulation in the scrubber systems and thermal oxidiser temperature is monitored continuously. The part B authorisation for the two sites were updated by Worcester City Council in early 2002 to include the twin melting system and monitoring conditions for the acid scrubber systems.



The results of the non continuous monitoring assessments are forwarded to the Council every year, while the continuous monitoring results are presented to Worcester City

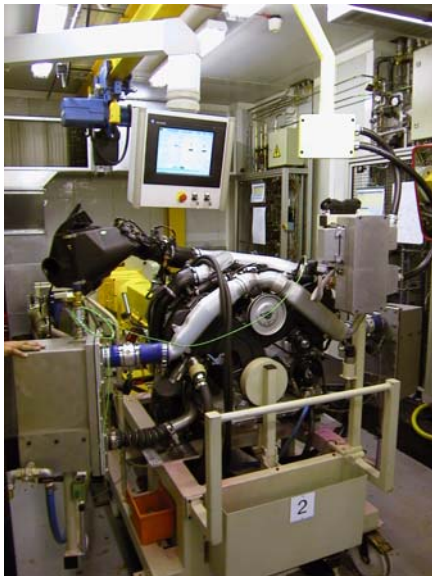
Council as part of our monthly report. Any breaches are highlighted along with corrective action summaries. In 2002 the annual stack monitoring was delayed until the beginning of 2003 to take into account the changes required by our IPPC application. Worcester City Council have been kept informed of the delay.

The Pollution Prevention and Control (PPC) Regulations 2000 set new criteria for prescribed processes. The foundry operations at Worcester will be affected by this legislation. During 2002 further discussions with Worcester City Council regarding the foundry furnace capacity at the larger of the two foundries lead to a new decision regarding our type of permit. It was decided that the large foundry will now be subject to a part A1 permit regulated under the Environment Agency. The smaller foundry will remain under a part B authorisation regulated by Worcester City Council. The application for the permit was started at the end of 2002 and will be submitted to the Environment Agency in March 2003.

At the Northampton and Wellingborough sites, emissions to air are derived mainly from the Test Cells in the engine test facilities. These emissions include carbon dioxide, carbon monoxide, hydrocarbons and nitrous and sulphurous oxides, which contribute towards the greenhouse effect.

## Discharges

Under the Water Industry Act 1991, discharges to the foul sewer from trade and business premises may only be made in accordance with consents issued by the local sewerage undertaker, which for Northampton and Wellingborough is Anglian Water, for Worcester, Severn Trent.



The Northampton site has consent to discharge, which covers discharges from the cooling towers, the para-wash area and the car washing area.

Wellingborough's consent permits discharges from the cooling towers and the wastewaters generated during the degreasing, rumbling and washing of engine components.

The Worcester sites were issued with small volume discharge consents from Severn Trent Water Authority in 2001 following a review of the discharge levels. The consents include cooling tower, jet wash and oil separator discharges. During 2002 an additional water/oil separator discharge, a castings wash discharge and a filter wash discharge were added to the small volume consent.

## Waste

Section 34 of the Environmental Protection Act 1990 introduces a "Duty of Care" for waste management. The "Duty of Care" applies to anyone who produces, imports, carries, keeps, treats or disposes of waste.

As a producer of waste, Cosworth Technology fulfils its duty of care by packaging waste in such a way as to prevent escape or leakage whilst on site, in transit or in storage. The company also ensures that its waste is only transferred to an authorised waste carrier and that a written description of the waste is provided.

Under the Special Waste Regulations 1996, all oil waste is transferred using a registered waste management contractor and disposed to a recycling / treatment plant. At Northampton, waste oil originates from the process of engine testing, general machining in the Vehicle Workshop and assembly processes in the Engine Build area; at Wellingborough from machining, assembly and testing; and at Worcester waste oil originates from hydraulic machinery and general maintenance activities.



## Contaminated Land

An Environmental Assessment was conducted at the Northampton site during November 1995 by Environmental Assessment Group, at Wellingborough during the year 2000 by Nicholls Colton Geotechnical, and at the Worcester site by Environmental Strategies, during July 1994. The primary objective of these investigations was to identify whether there had been any former uses of the sites and if so, to establish the likelihood that these former sites had given rise to contamination.

The assessments involved visual inspections of the sites, reference to local authority records and maps, consultations with statutory authorities and the collection and analysis of soil and groundwater samples.

The Northampton site was previously an ash disposal site and a rubber works. As a result, it is contaminated with metals, hydrocarbons and carbon dioxide gas. The likelihood of these materials causing pollution is very low - infrequent redevelopment works that may cause the soil to be re-located are tightly controlled. Furthermore, the chemical contaminants in the soil are in an immobile and stable state, and the groundwater has been shown to be uncontaminated.



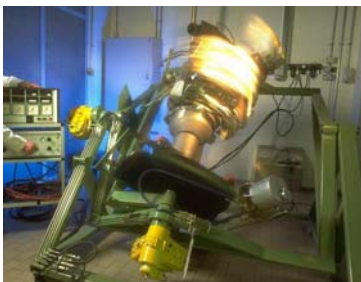
At Wellingborough there is very shallow depth contamination of the yard area from small spillages of mineral cutting fluids. The natural clay deposits of the underlying soil indicates that there is no discernable vertical migration of the contamination. There is a Management program established to improve the liquid waste handling at this site.

The Worcester site was formerly a Greenfield site. The investigation found that soil and groundwater are not contaminated. Further confirmation of this has been provided by an Environment Agency information report.

## Resources

Under the Control of Substances Hazardous to Health Regulations 1999, all substances or materials used on the site are first subject to an evaluation. Part of this process identifies toxicity to humans; the second part identifies eco-toxicity to the surrounding environment.

The Producer Responsibility Obligations (Packaging Waste) Regulations 1997 place obligations on certain businesses to recover and recycle specific tonnages of packaging waste. Packaging waste produced at each site is monitored and data collated annually, although Cosworth Technology as a Group, do not come above the 50 tonne threshold limit for obligation.



Energy consumption and costs are currently monitored on a site basis. Cosworth Technology demonstrates responsible energy management and promotes energy efficiency. We have developed Energy Efficiency environmental management programmes at all sites and are consistently investigating the implementation of energy saving measures.

By saving energy, the company is not just saving money, but are also preventing pollution. The main contributor to the threat of global warming is carbon dioxide, which is produced by the process of electricity generation. Other gases that are produced by this process include sulphur dioxide and nitrogen oxides, which lead to acid rain and air pollution.

## Landscape & Ecology

The River Nene flows 200m west of the Northampton site. As a result of the flood warnings issued in the area during the year 2000, the site has initiated a flood control procedure. Cosworth Technology's surface water drains discharge directly to the River Nene, which is protected by interceptors at specific locations around the site.

The surface water drainage system on the Wellingborough site discharges into a storm lagoon at the southern most corner of the Park Farm industrial estate. The lagoon feeds an adjacent stream, which then leads to the Swans Pool Brook and the River Ise. In a similar way to the Northampton site, petrol and oil interceptors protect the River Ise.



The Great Crested Newt is an endangered species in the UK and is found on the Worcester site. Cosworth Technology invested in two new ponds in the year 2000. In 2002 an amphibian survey of ponds was carried out to determine the population of newts. The population data can be seen in section 3.

## Support Functions

Cosworth Technology conducts Environmental Team Briefs with all its employees. All staff are made aware of the impact that the company and their individual actions can have on the environment, both globally and locally.

Cosworth Technology are implementing further consideration of the environment within design and purchasing processes and practices.



## Disaster

All sites currently operate a number of contingency plans that are defined within controlled Work Instructions – e.g. fire, flood, and spillage. Key personnel have been fully trained to manage the situation in the event of any emergency.



## Product

The environmental impact of Cosworth Technology's finished product, a road engine, does not end when it leaves the company. Design procedures are being further developed to include an assessment of the product's life cycle, which will take account of all environmental impacts.

## 2. Environmental Organisation & Personnel

### Environmental Organisation

The Group Quality Director, Ian Riggs is responsible for leading Cosworth Technology in environmental management.

Each site is led by a nominated Environmental Champion and supported by a cross-functional environmental team. The Group Health, Safety & Environmental Advisor, Philippa Bass, provides specialist support to these teams.

These environmental teams are responsible for reviewing the environmental performance for the site, establishing and prioritising improvement plans and for ensuring that the environmental management system is effectively implemented.

Environmental performance is reported to the Senior Management Teams at each site and includes ;

- Environmental audit results
- Environmental concerns
- Environmental management program status

### Northampton

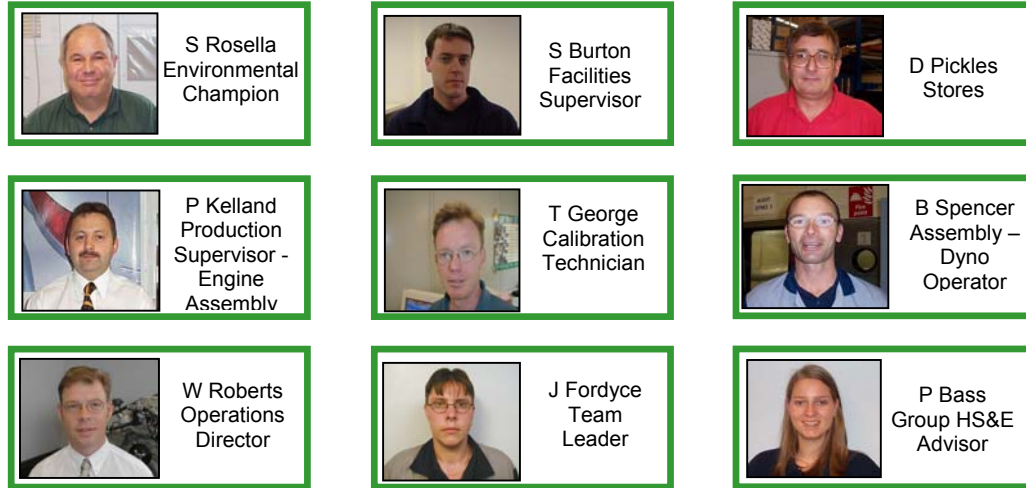
At Northampton the Health, Safety & Environmental team is responsible for Health, Safety and Environmental Management and is chaired by the Managing Director - Engineering, Charles Bolton. The Environmental Champion for the site is Anna Broadhurst, Quality Leader.



### The Northampton Health, Safety & Environmental Team

## Wellingborough

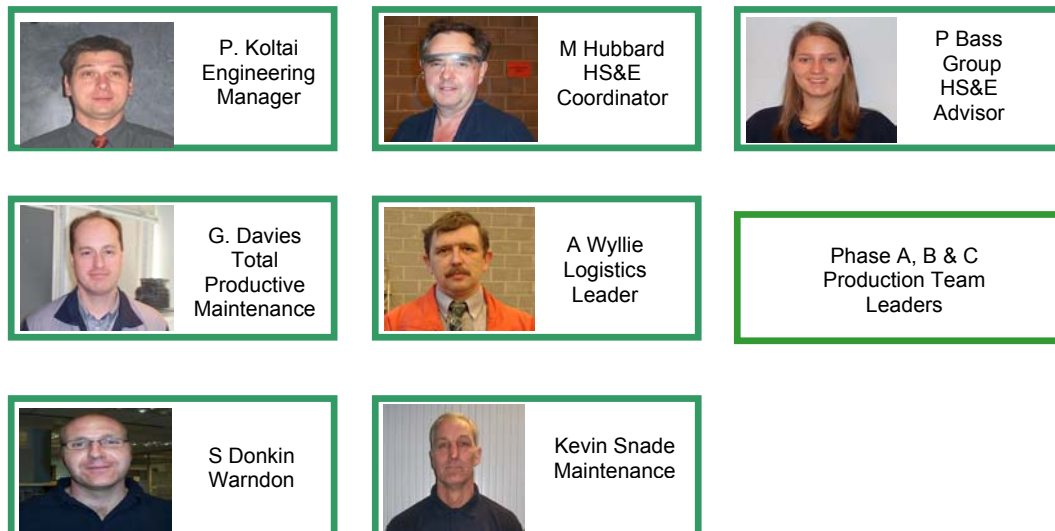
The members of the Wellingborough Environmental Team are shown below. The Environmental Champion for the site is Steve Rosella, Senior Supervisor Machining.



### The Wellingborough Environmental Team

## Worcester

The Worcester Environmental Team is chaired by Peter Koltai, Engineering Manager. The Environmental Champion is Maurice Hubbard, Site Health, Safety & Environmental Coordinator. The team includes members from across the business functions.



### The Worcester Foundry Environmental Team

## Personnel Training

In total, environmental training during the year 2002 equated to 48 man-days, including:

- Emergency Spillage Training for 90 people at Worcester and Northampton
- Energy Efficiency Training for 3 people at Northampton
- Internal Environmental Auditing training for 1 person from Head Office
- Environmental Plant Maintenance Checks for 5 engineers at Worcester

Maurice Hubbard and Philippa Bass have undergone training for the handling, identification and surveying of Great Crested Newts. Both were also licensed by English Nature enabling them to undertake in-house surveys of the newt populations.

Philippa Bass attended a one-day Environment and Waste Management seminar in March to raise awareness of new legislation and national strategies. The topics covered were National Waste Strategy, Implementation of the End of Life Vehicles Directive, Landfill Directive, IPPC and Contaminated Land.

Since September 2000, all new employees receive environmental awareness training as part of their induction to the company. This training has been extended to existing employees during 2002. During the year 2002, 107 Northampton employees and 28 Wellingborough employees have undergone environmental awareness training.

## Environmental Qualifications

The Group Quality Director is a member of the Institute of Environmental Management and Assessment (MIEMA) and has completed the EARA approved Environmental Auditor Foundation qualification.

The Group Environmental Advisor has been awarded a University of Wales honours degree in Environmental Risk Management and has completed the EARA approved Advanced Environmental Management Systems Auditor course.

The Northampton Quality Leader has an MSc in Energy Conservation and Environment from Cranfield University and has completed the EARA approved Advanced Environmental Management Systems Auditor course.

Four employees are currently trained as internal environmental system auditors. Kelly Gray, Central Quality, began her training during 2002 and is now qualified to conduct compliance based, internal environmental system audits.

## Communications

There is a process at each facility to record and respond to environmental communications from both internal and external sources. The Environmental Champion is responsible for this process and for ensuring its effectiveness. Each site uses company noticeboards, team briefs and presentations to promote environmental performance and initiatives.

Our environmental performance is communicated internally via noticeboards and this verified statement. Copies of this statement shall be made available to employees, customers, suppliers and other interested parties through hard copy and via our Internet site [www.cosworth-technology.co.uk](http://www.cosworth-technology.co.uk). During 2002, there were 274 visitors to our full EMAS Statement and 104 visitors to our summary EMAS Statement, which are both posted on the Cosworth Technology website.

In 2002, 112 summary EMAS Statements were sent to our key customers and suppliers, regulatory bodies and other interested parties.

## Contractors

Contractors who carry out work on behalf of Cosworth Technology are required to comply with our Health, Safety and Environmental Contractor Guidelines. Failure to comply with these guidelines shall result in the contractor being removed from the approved contractor list.

## Environmental Concerns

The Environmental Management System includes a process for the recording of environmental concerns and resultant corrective actions. The Environmental Champion at each site is responsible for the effective implementation of this process and for reporting the status to the environmental management team.

Concerns may be raised as a consequence of internal issues such as deviations from operational control, internal reviews, employee concerns etc or from external parties such as local authorities, regulatory bodies, local residents, interest groups etc. Internal concerns may also take the form of suggestions leading towards continual improvement.

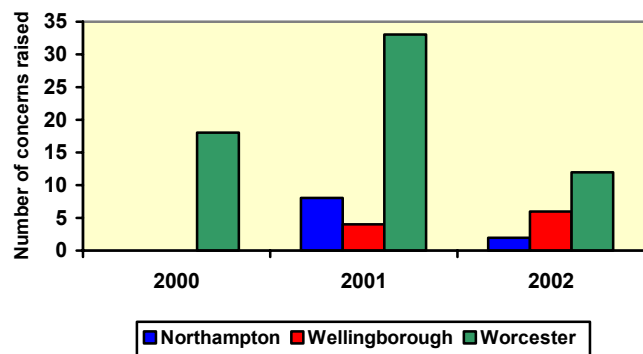
There were two internal concerns raised at Northampton. The issues were raised by Cosworth Technology employees and involved segregation of waste and spillage control. Both these concerns are now closed.

Six internal concerns were raised within the Wellingborough EMS during 2002. Areas that required improvement included waste management, plastic recycling and spillage control. Five of these concerns are now closed. The concern raised regarding the bunding around the waste management area is on hold until site expansion plans are approved. These plans will include an upgrade to the whole waste management area.

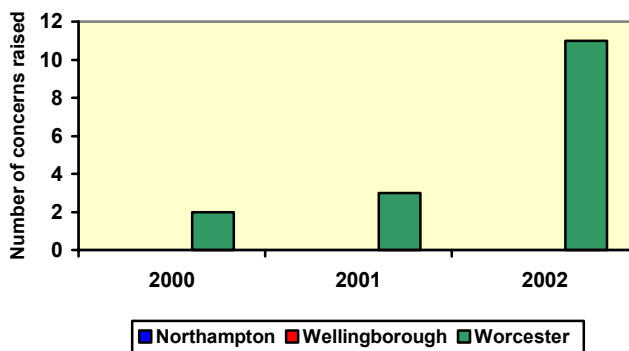
Five of these concerns are now closed. The concern raised regarding the bunding around the waste management area is on hold until site expansion plans are approved. These plans will include an upgrade to the whole waste management area.

No justified external concerns were raised at Northampton or Wellingborough during 2002. One alleged, unauthorised discharge from the Wellingborough site was reported to the Environment Agency during October. Environment Officers from the Agency visited the premises and found no evidence to support this claim.

**Internal Concerns**



**External Concerns**



In the year 2002, 11 internal concerns and 12 external concerns were raised at Worcester. The internal concerns at Worcester were raised through daily observations, incidents and assessments. The external concerns were raised by local residents, either directly to CT or via Worcester City Council regarding odours caused by emissions from the process.

## 3. Environmental Management System

### Business Policy Statement

Cosworth Technology, as a provider of integrated powertrain solutions to the global automotive and allied industries, is committed to achieving excellence in all aspects of its business activities with the aim of ensuring total customer satisfaction.

Our business activities include engine design, development, calibration and diagnostics, casting, engine assembly and machining and test installation. Our customers are those who buy our products and services, our suppliers, our employees and all those with which we have contact.

Our Business Management System defines the organisation, responsibilities, policies and procedures required to meet the following goals;

- The prevention of product and service defects, environmental pollution and health and safety hazards
- Exceeding the requirements of our customers (including Quality, Cost and Delivery), applicable Health, Safety & Environmental legislation and the international management standards ISO9001 (Quality Management), ISO/TS 16949 (Automotive Quality Management), ISO14001 and Eco-Management & Audit Scheme (Environmental Management)
- The continuous improvement of all business activities (including Quality, Environment and Safety performance) through clearly defined objectives and targets, with the active involvement of all employees and the use of cross functional teamwork
- Increased employee flexibility through structured training and development programs
- Development of strong supplier relationships to support our business policy
- Achieving the business plan (including budget and profit targets)

The Board of Directors shall ensure that adequate resources are available to implement this Business Policy and that it is understood, implemented and maintained at all levels within the organisation.

The effectiveness of the Management System shall be verified through regular, planned audits and the management review of key performance indicators.

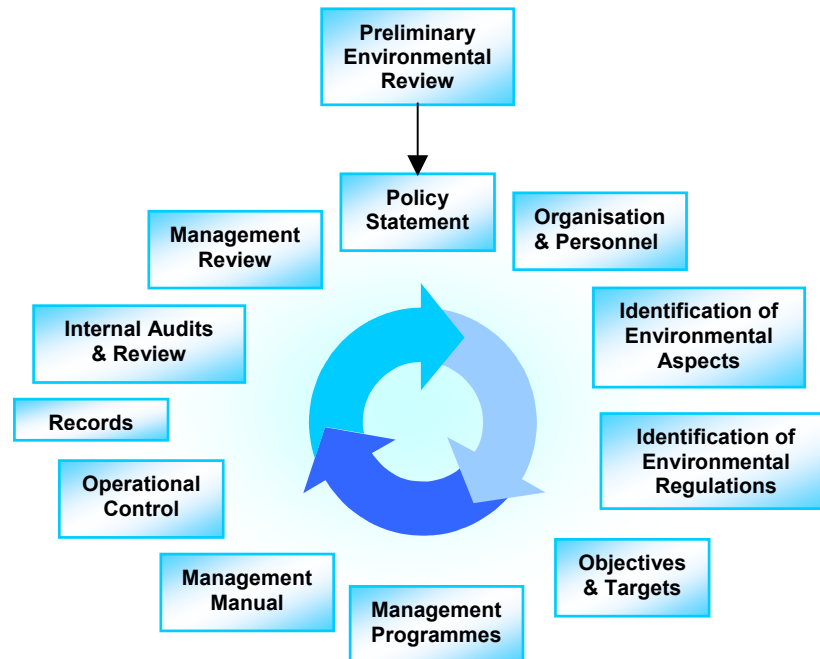


Dr Norbert Sudhaus  
Chief Executive

Revision: H

09/07/2002

## Environmental Management System



Cosworth Technology has developed its Environmental Management System on the requirements of ISO14001. A corporate policy manual has been established which defines the scope and responsibilities for the environmental system.

The policy manual is supported by detailed procedures and work instructions, which are a mixture of corporate and site specific operational requirements. The system includes the identification of the environmental aspects related to the activities of the company and related legislation and guidance notes, etc.

The business policy statement highlights the company's policy for the prevention of pollution, compliance to environmental legislation and for the continuous improvement of our environmental performance.

Formal objectives and targets are set each calendar year, which relate to the environmental performance of each operation. Responsibilities and timescales for each objective are defined.

The environmental management system is audited for compliance annually by our own trained auditors. In addition our third party certification body, SGS Yarsley conduct assessments at each of our facilities every six months.

## Environmental Objectives and Management Programs

### Review of Year 2002 Environmental Objectives



#### 1. Achieve EMAS at the Wellingborough facility

The Wellingborough manufacturing facility was successfully added to the scope of the Cosworth Technology registration to EMAS on 6<sup>th</sup> February 2002.

#### 2. Reduce energy consumption per £M turnover, by 5%, from 2001 levels, at Northampton and Wellingborough. Achieve energy reductions according to Climate Change Levy agreements at Worcester.

The Northampton site achieved a 4% reduction in electricity consumption, expressed as kilowatt-hours, during 2002. The Energy Team is currently investigating an alternative reporting method for relating energy consumption to the activities of the business. The data shows that there is a poor correlation between energy consumption and business turnover.

The Wellingborough site achieved an 11% reduction in electricity consumption per £M turnover, from 2001 levels.

At Worcester, energy reductions under the climate change levy for the 1st target period October 2001 to September 2002 were met - achieving an 80% rebate on the levy paid.

For the production foundry the target for 2002 was a reduction of 2.4% kWh/tonne. The actual achieved reduction was 15.5%. For the low volume foundry the target for 2002 was a reduction of 0.87% in kWh/tonne. The actual achieved reduction was 9.88%.

Initiatives for reductions during 2002 were an office and plant energy shutoff policy together with improved cycle times enabling castings to be produced in shorter periods of time using less energy. Energy reductions will continue during 2003 for the next target period of the levy agreements.

Further details on energy efficiency at all sites can be found in section 4.

#### 3. Develop waste minimisation techniques at Northampton and Wellingborough, using knowledge gained through the government's local Business Link project "Cut Waste – Improve Competitiveness". The Worcester site will continue to minimise waste per £m turnover, by 5% from 2001 levels.

Representatives from both the Northampton and Wellingborough sites have regularly attended the Business Link meetings, "Cut Waste – Improve Competitiveness". One of the presentations given during 2002 included a summary of ISO 14001 and EMAS implementation at Cosworth Technology, by Anna Broadhurst. Presentations by other members of CW-IC have included updates on new legislation, the Northamptonshire Waste Network and the Northamptonshire Business Environment Awards 2002 (further information on these awards is given in section 4).

The Northampton Waste Management team have used a variety of guidance materials from Envirowise in order to establish their Waste Minimisation programme. The team have generated a waste map for the site and local supervisors have reviewed their areas for waste minimisation opportunities. Some of these areas will be assessed in more detail during 2003.

The Waste Team at the Wellingborough site was established during 2002. The team has learnt about waste mapping through Envirowise publications and videos, and has now mapped the wastes generated throughout the plant. This data will be utilised during 2003, within a brainstorming session aiming to minimise waste from machining and assembly lines.

At Worcester the total waste tonnage per £Million pound of turnover for 2002 was 62.89 compared to 83.98 for 2001. This represents a reduction of 25%. This improvement is due to the significant reduction in scrap and increased process efficiency achieved in 2002.

#### **4. Update existing design practices to include consideration of environmental issues**

Design Review processes at Northampton have been expanded during 2002, and now include detailed review checklists. These checklists prompt a design team to consider environmental aspects, such as recyclability, re-use, total energy use etc.

Envirowise is a government programme offering practical advice on “Design for Environment” and promoting best practice across the UK. In October 2002, Envirowise launched “Design Track”. This is a confidential, Cleaner Design site visit where a Cosworth Technology engine will be analysed by a design consultant with the aim of identifying re-design improvements. This visit will be arranged with Envirowise during February 2003.



#### **5. Conduct a detailed evaluation of the environmental impact of CT's key suppliers**

During 2002 it was decided to change the emphasis of this objective to focus on promoting environmental management to those key suppliers who do not have any plans for implementing an Environmental Management System.

Two workshops were held at Cosworth Technology with 12 key suppliers. The workshops included ;

- An introduction of ISO 14001 and EMAS
- Drivers and benefits of good environmental management
- Examples of penalties for the contravention of environmental legislation
- Key steps in ISO 14001 implementation
- and support from Cosworth Technology

#### **6. Reduce packaging used at the new Wellingborough logistics site compared to 2001.**



During 2002, Wellingborough Logistics began working with Cosworth Technology's parent company, VW/Audi, on a container management system. Within this system, Cosworth Technology raises packaging specifications for parts delivered by suppliers, which dictate the use of returnable packaging. The implementation of this system will continue during 2003.

#### **7. Improve chemical storage and bunding at Worcester**

The project proposal for the improved chemical storage and bunding area at Worcester has been approved by the Senior Management and will be implemented during 2003.

## 8. Comply with the requirements of PPC at Worcester

During 2002 further discussions with Worcester City council regarding the foundry furnace capacity at the larger of the two foundries lead to a new decision regarding our type of permit. It was decided that the large foundry will now be subject to a part A1 permit regulated under the Environment Agency. The foundry started the permit application with the help of Casella Stanger Environmental Consultants In September 2002 and is due for completion in March 2003. The smaller foundry will remain under a part B authorisation under the regulation of Worcester City Council.

## Other factors regarding environmental performance

### Northamptonshire Business Environment Awards 2002



Cosworth Technology (Northampton and Wellingborough sites) won two awards at the Northamptonshire Business Environment Awards 2002 – the “Best Company Award (250+)” and the “Environmental Management Award”.

The awards recognise environmental success stories from a wide range of Northamptonshire businesses. They reward those who have taken on board environmental goals and through this commitment have made positive changes and lasting improvements to their business and the environment alike.

### Amphibian Survey of the Worcester Newt Ponds

During 2002 Cosworth & Casella Stanger Environmental Consultants worked on a joint training and survey program. Maurice Hubbard & Philippa Bass were trained by Casella in handling, identifying and bottle trapping newts for population survey. Casella conducted some survey work and when Philippa & Maurice obtained licences from English Nature they were able to conducted such surveys without supervision. The survey work is part of the annual maintenance schedule to monitor the population of the Great Crested Newts and other species found in the conservation area.



All ponds in the nature reserve were surveyed using standard live “bottle funnel” traps and nighttime torch light surveys. According to English Nature guidelines the population counted is small to medium.

### **Bottle Trapping Survey**

Male Great Crested Newts	Female Great Crested Newts	Great Crested Newt Larvae	Male Smooth Newts	Female Smooth Newts	Smooth Newt Larvae
77	37	100	23	9	3

### **Torch Light Survey**

Adult Great Crested Newts	Adult Smooth Newts.
42	49

Amphibian surveys will take place during spring and summer 2003 to monitor population progress.

### **Support for local schools through printer cartridge recycling**

Cosworth Technology, Northampton, donated used printer cartridges to St Lawrence School in Wymington, during 2002. These donations contributed towards a total of 147 cartridges recycled through the school, and used to buy IT equipment for the school.

### **Young Enterprise Scheme**

Cosworth Technology continued to support the Worcestershire Young Enterprise Scheme in 2002. One of the enterprise companies won second prize for "Best Product" and third prize for "Best Customer Service" at a young enterprise trade fair where they were competing with more than 70 companies.

### **Donation Of Plastic Bottles**

Cosworth made their own funnel bottle traps for monitoring the great crested newt population. Esterform Packaging located in Tenbury Wells, Worcestershire donated sixty plastic bottles to enable Cosworth to make their own funnel bottle traps for monitoring the great crested newt population.

### **Undergraduate Work Placement**

Rhys Sherman, a second year undergraduate degree student in Environmental Risk Management at the University of Wales, Institute, Cardiff, joined the Cosworth foundry sites for an eight-week work placement. Rhys worked on Health, Safety and Environmental projects.

## **Environmental Risk Management Degree – External Examiner**

In January 2002 Ian Riggs was appointed by the University of Wales, as an external examiner for the Environmental Risk Management Degree offered by the University of Wales Institute, Cardiff.

## **Worcestershire Police Dog Training**



During 2002 Cosworth Technology, Worcester, cooperated with the Worcestershire Police force to use the site for training police sniffer dogs.

## **Environmental Objectives for 2003**

1. Complete Part A1 PPC permit application for the production foundry.
2. Establish systems to recycle drinks cans and plastic cups at Northampton.
3. Promote energy efficiency through the Northampton site Employee Briefings.
4. Worcester Foundry to register for carbon trading.
5. Continue with the climate change agreements and energy reduction at Worcester.
6. Implement paper and light bulb recycling at Worcester.
7. Improve the waste management area at the Wellingborough site.

## 4. Environmental Monitoring Data

Compliance with all relevant environmental legislation is one of the key aims of Cosworth Technology's EMS - it is contained within the Policy as a minimum requirement. Legislation plays an important role in environmental protection and to support this Cosworth Technology has established good working relationships with regulators such as Worcester City Council, Anglian Water, Severn Trent Water and The Environment Agency.

### 2002 Emissions Monitoring Results - Part B Authorisation (Worcester)

Pollution abatement equipment is used by Cosworth Technology to remove pollutants from the atmosphere. This equipment is subject to two Part B authorisations, which are issued by Worcester City Council, under the Environmental Protection (Prescribed Processes and Substances) Regulations. These authorisations require both continuous and non-continuous monitoring.

#### Non-continuous monitoring

To demonstrate compliance with our Part B authorisations at the Worcester sites, Casting Technology International conducted non-continuous monitoring of total particulate matter, volatile organic compounds, copper particulate, triethylamine and lead for the year 2002.

The 2002 annual stack monitoring was delayed until the beginning of 2003 to take into account the changes required by our IPPC application. Worcester City Council have been kept informed of the delay.

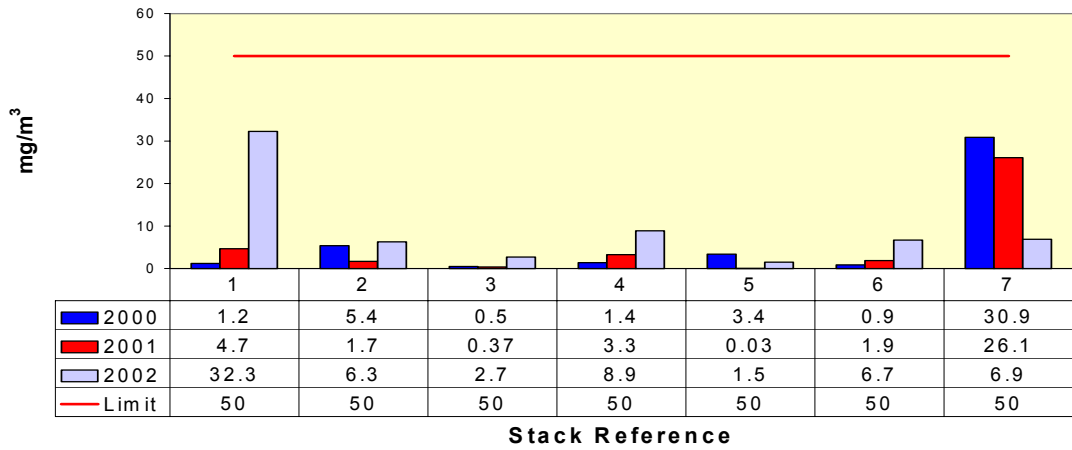
The charts and tables below show the consent levels, together with the pollution levels that were determined during the tests in 2000, 2001, and for 2002. The consent levels are defined by the regulators, Worcester City Council. Due to changes in plant ductwork, access to the Phase A quench stack was not possible for monitoring Amines and VOC's. Worcester City Council gave permission to monitor for the above emissions at a later date in 2003 when fixed access has been installed.

The chart shows that these levels were not exceeded and no problems of compliance are anticipated.

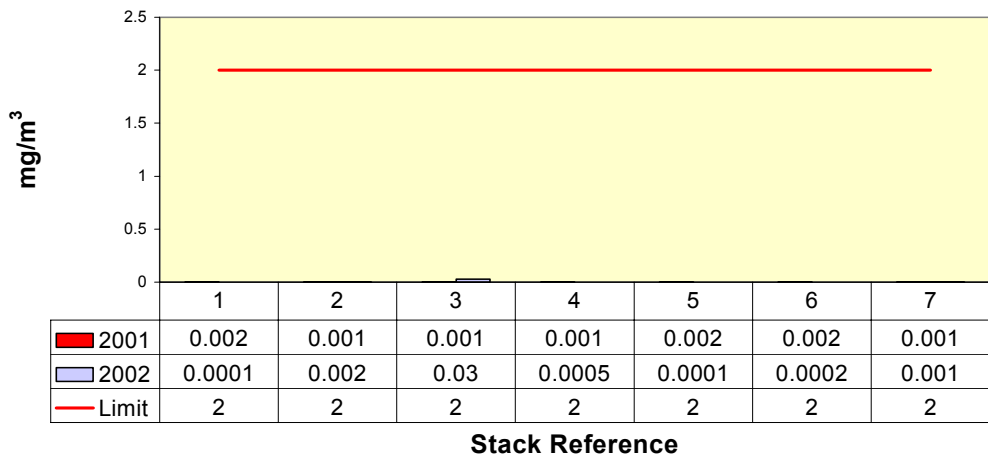
### Annual Non-Continuous Emissions Monitoring Results Year 2000 to 2002

		TPM (mg/m <sup>3</sup> )			Lead (mg/m <sup>3</sup> )		VOC (mg/m <sup>3</sup> )			Copper (mg/m <sup>3</sup> )			TEA (ppm)		
		'00	'01	'02	'01	'02	'00	'01	'02	'00	'01	'02	'00	'01	'02
	<b>Emission Limits</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>2</b>	<b>2</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>5</b>	<b>5</b>	<b>5</b>
1	COS IV Phase A Final	1.2	4.7	32.3	.002	.0001	11.1	4.3	13	0.01	.002	.003	4.54	2.8	0.02
2	COS IV Phase A Quench	5.4	1.7	6.3	.001	.002	6	4.3	-	0.01	.001	.002	0.92	4.2	-
3	COS IV Phase C Final	0.5	0.37	2.7	.001	0.03	9.2	1.6	14.8	0.01	.001	.003	0.3	1	1
4	COS IV Phase C Quench	1.4	3.3	8.9	.001	.0005	2.2	11.2	3.6	0.01	.002	.003	0.25	4.3	1
5	Buckholt Scrubber	3.4	0.03	1.5	.002	.0001	24.7	5.3	31.4	0.01	.003	.001	3.35	3.6	1
6	Buckholt cooling track	0.9	1.9	6.7	.002	.0002	33	2.1	17.1	0.01	.002	.002	0.26	3.8	0.04
7	Buckholt reclaimer	30.9	26.1	6.9	.001	.0001	34.1	2.7	48.5	0.01	.001	.004	0.16	1.1	.006

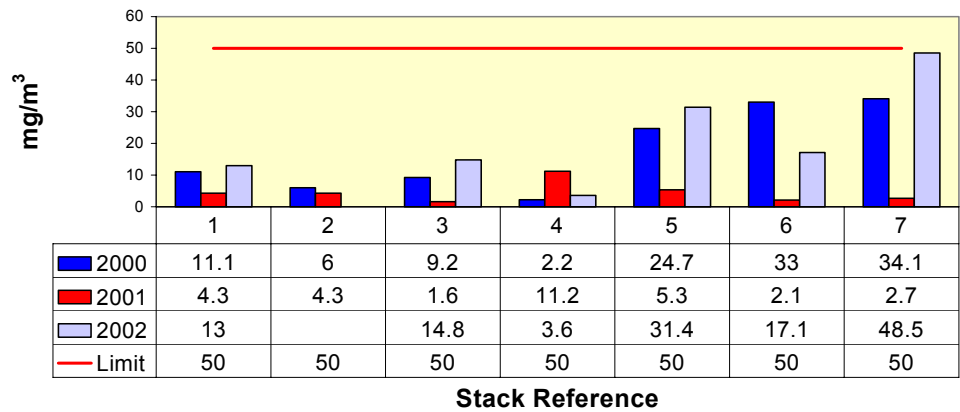
### Total Particulate Matter Emissions Results



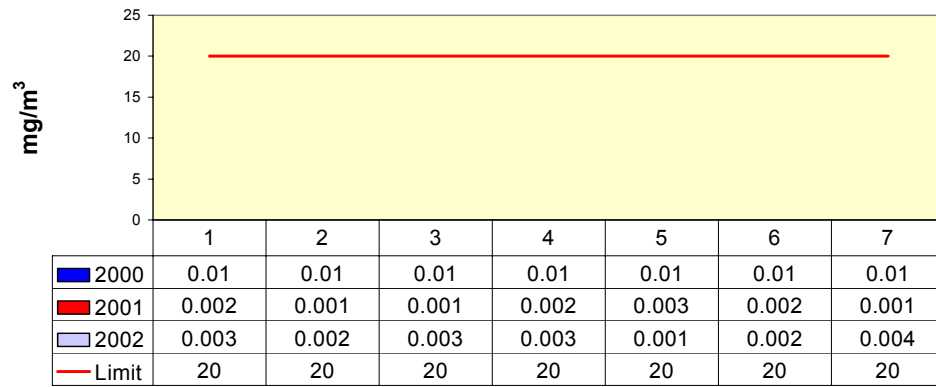
### Lead Emissions Results



### VOC Emissions Results

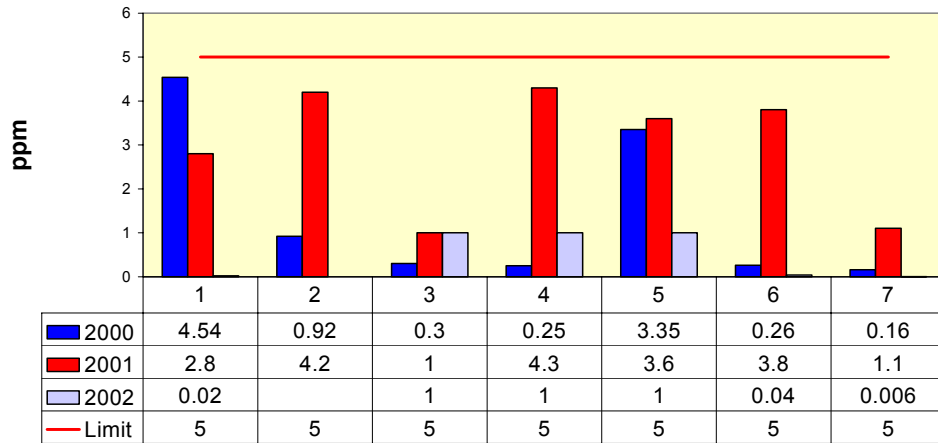


### Copper Emissions Results



Stack Reference

### Triethyleamine Emissions Results



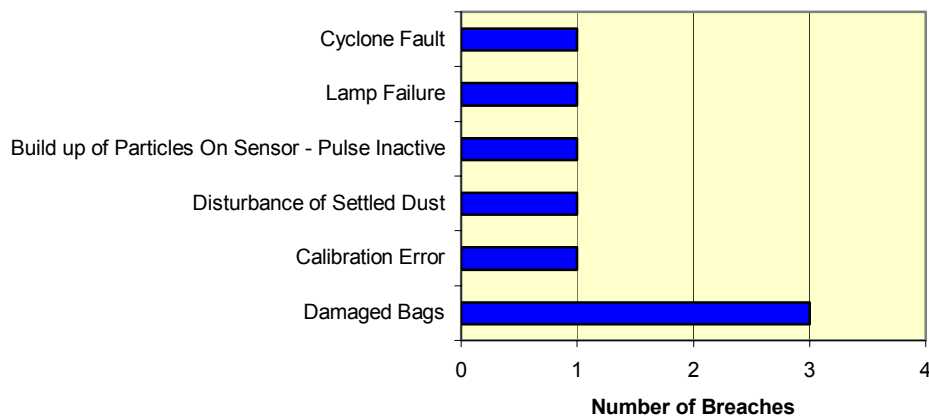
Stack Reference

## Continuous Monitoring

One of the requirements within the Part B authorisations is continuous monitoring of both Total Particulate Matter and incinerator temperature.

### Total Particulate Matter (TPM) Emissions 2002

A Total Particulate Matter monitor is situated within the stack from the incinerator. Data from this monitoring equipment is downloaded weekly and high reading alarms are checked daily. The data is logged and kept in a Central File, with any high readings being investigated and reported to Worcester City Council.



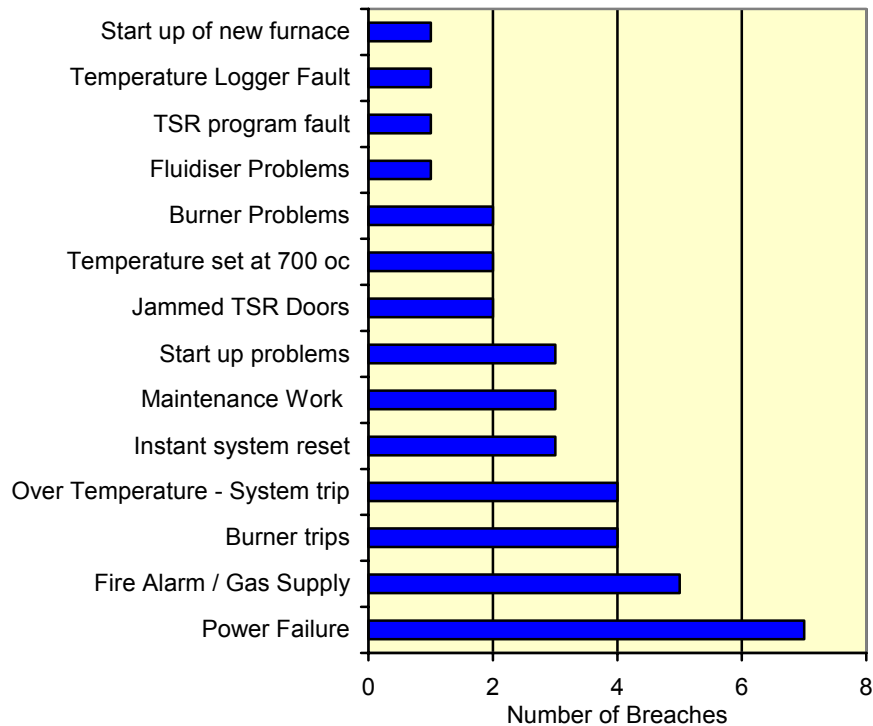
Data from this monitoring equipment is downloaded approximately monthly and high reading alarms are checked daily.

The chart shows eight high readings during 2002, one less high reading than that in 2001. Following investigation, all of these TPM breaches were caused by faults as explained below, and are not due to genuinely high levels of particulate matter. Appropriate corrective actions were implemented in all cases.

- Damaged and faulty filter bags caused three breaches. The bags were replaced by the Plant Maintenance Department returning the readings back to normal.
- A breach was caused by a lamp failure on the monitor itself. The lamp emits light that is received by a sensor. The more particulates that pass through the light causes less light to be received by the sensor thus giving the particulate reading. Because no light was being received by the sensor when it failed the sensor thought it was detecting very high levels of particulates.
- One breach was caused by a calibration error leading to higher than normal readings. The equipment was re calibrated following the error.
- On one occasion the cyclone system malfunctioned causing a high reading however it was returned to normal operation returning the readings back to normal.
- One high reading was caused when the plant was turned off for a maintenance shutdown period. Particles settled in the system were emitted in one go when the plant was started up causing a high reading.
- One high reading was caused by dust settling on the sensor following the plant being shutdown for planned maintenance.

## Incinerator Temperature Drop 2002

The Thermal Sand Reclaimer (TSR) burns off volatile organic compounds (VOCs) which pollute the environment. It is important to maintain a high temperature during this burning process, to ensure that these pollutants are completely destroyed. The temperature of the TSR thermal oxidiser is continuously recorded and downloaded by a real time data logger. Graphical data is printed, retained in a Central File and used to identify temperature drops.



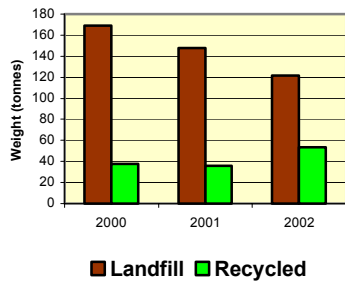
The chart above shows that fourteen types of fault have caused the incinerator temperatures to drop. The most common five issues are discussed below:

- 7 of the incidents were caused by power failures. Power failures shut the whole system down causing the temperature to drop. Once the power was resumed the TSR and thermal oxidiser system set temperatures were steadily restored.
- Fire alarms and gas supply problems accounted for 5 temperature drops. If a fire alarm is set off then the gas supply is automatically shut off. Following the resetting of the fire alarm the gas supply was resumed.
- Gas Burners tripping out caused 4 temperature drops.
- On 4 occasions the thermal oxidiser overheated causing the system to shut off automatically resulting in the temperature falling. On all occasions the system was reset and resumed correct temperature.
- System resets accounted for 3 drops in temperature. The TSR has many alarm systems to warn of problems with sand reclamation. The gas supply is automatically turned off as a precaution causing the temperature to drop for a short period of time. After the issue has been resolved the reset button is pressed to resume the system to the correct temperature.

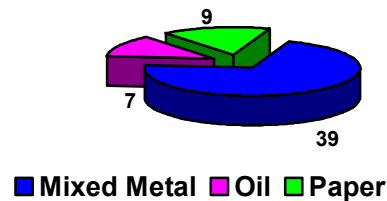
**Note : The data for both Temperature Drop and TPM in 2002 represents 172 days out of a total of 327 days worked. Missing data due to a fault with the computer archive records.**

## Waste Disposal & Recycling

### Northampton



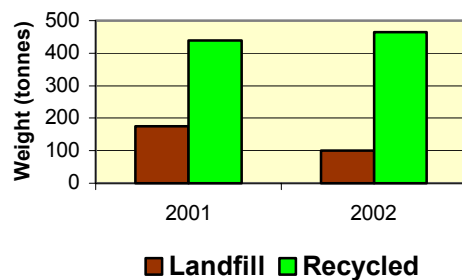
Recycled Waste (tonnes)



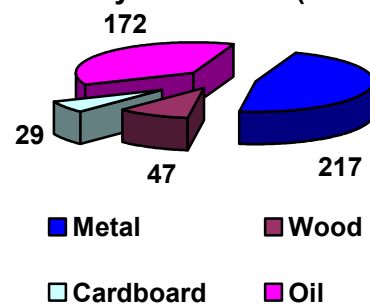
The total amount of waste generated on the Northampton site has decreased by 5% during 2002, and the amount of waste recycled has increased by 50% when compared to 2001 figures. Increases of 95% in recycled metal and 80% in recycled paper have assisted in achieving these figures. The chart shows that just under a third of all waste produced is now recycled.

Waste that is currently recycled includes mixed metals, used oil and waste paper. Recycling systems at Northampton will be expanded during 2003, to include drinks cans and plastic cups.

### Wellingborough



Recycled Waste (tonnes)

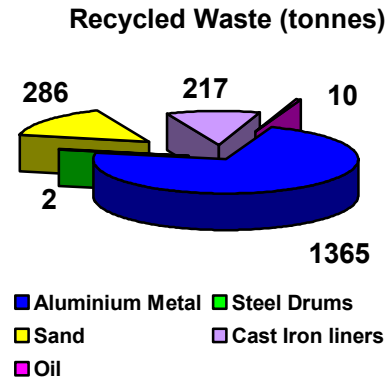
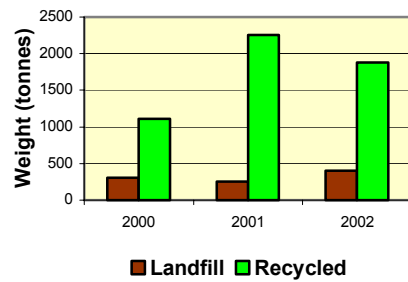


Waste monitoring at Wellingborough began during 2001. The chart above shows that the total waste generated at our manufacturing site has decreased by 8% and that a total of 82% of all waste produced is now recycled (compared to 72% during 2001).

The amount of waste sent to landfill has reduced by 42% due to increased recycling of wooden pallets and cardboard. 47 tonnes of wood and 29 tonnes of cardboard generated at Wellingborough, were recycled through a local waste paper merchant.

Systems for returnable packaging continue to be developed by the Logistics function, with the aim of reducing the quantities of wood and cardboard waste coming into Cosworth Technology from its suppliers.

## Worcester Waste



The chart above shows that the amount of waste sent to landfill has increased from 255 tonnes in the year 2001 to 400 tonnes during 2002. This increase has been due to the increase in production since the beginning of 2002. 1964 tonnes were recycled during 2002, which equates to 83.07% of all waste produced.

Recycled waste consists of sand fines, scrap aluminium from the foundry processes, oil from the machining cells, empty steel barrels ferrous metal from scrap machinery and cast iron liners. The sand fines are generated from the sand reclamation system, when the sand particle size gets too small for use it is filtered out the system and collected for recycling where it is used in the textured paints industry.

The data shown in these waste charts is based on estimates of weight of waste from known volumes

## Energy Usage

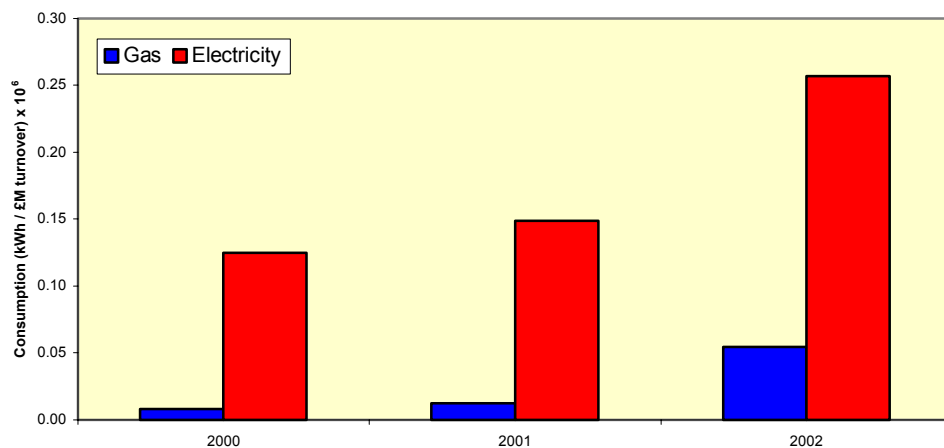
### Northampton

During 2002, the Northampton site electricity consumption, in terms of kilowatt-hours, has decreased by 4.4%.

When expressing energy consumption in terms of turnover, the chart shows increases in this ratio. This is caused by lower than expected turnover over the last two years.

During 2002, the Energy Team has been investigating an alternative method of reporting electricity consumption. 56% of the electricity consumed by the site during 2002, was used in the Engine Test Facility. Comparisons between electricity used and test hours run have been made and will be further analysed in 2003.

Northampton Energy Consumption



The gas consumption (kWh) shown on this chart has increased by a factor of 2.5 due to the improved control of utility suppliers. Cosworth Technology has two gas supplies to its Northampton site and these are both shown in the 2002 data above. During the years 2000 and 2001, the gas suppliers changed three times – two of these suppliers did not monitor gas consumption from one of the site meters. Consequently the 2000 and 2001 data shown above is only for one of the site gas meters.

Cosworth Technology has maintained its own internal energy consumption data since January 2002 for electricity and June 2002 for gas. This is now used to analyse data provided by suppliers and will help to prevent a reoccurrence of this situation.

Gas is used predominantly for space heating on the Northampton site.

The main achievements of the Energy Team during 2002 have been:

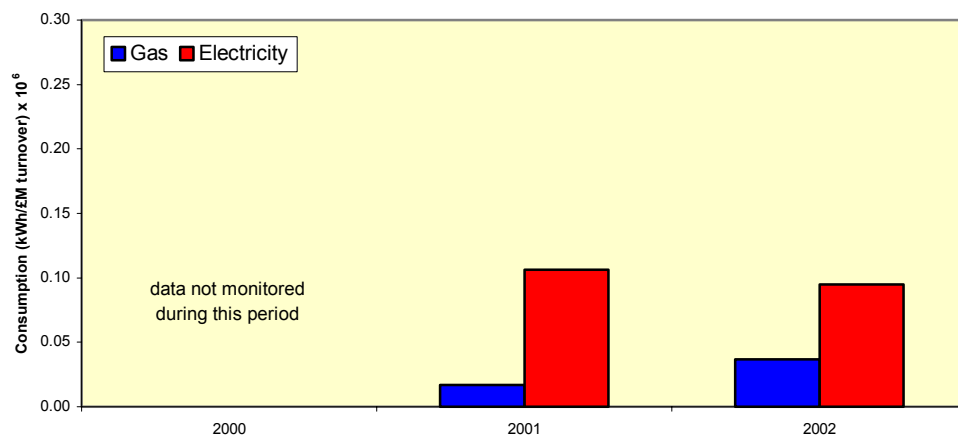
- Utilising timers to reflect occupation periods on heating unit
- Implementation of a lighting switch-off policy in April
- Training in energy management techniques for 3 team members in May
- A poster campaign supporting the lighting switch-off policy in July

## Wellingborough

The chart below shows that electricity consumption, in terms of kilowatt-hours / £ million turnover, decreased by 13% during 2002. This decrease exceeds the reduction target of 5% and was achieved despite the expansion of the manufacturing site, which now includes an additional warehouse facility.

The site expansion has led to an increase in gas consumption – the number of kilowatt-hours / £ million turnover has doubled.

**Wellingborough Energy Consumption**



Electricity at the manufacturing site is mainly used to power metal cutting machinery, cooling towers, engine test cells and lighting. Gas is used for space heating at both the main manufacturing site and the warehouse facility.

The Wellingborough Energy Team is led by Steve Rosella (Senior Supervisor – Machining) and has implemented a number of energy conservation initiatives, leading to cost savings, including:

- Reactivating the optimiser for the office central heating system. This means that the heating system has been programmed to know what time the offices will be occupied and that the offices must be at a certain temperature by this time. The time that the heating system begins to heat changes each day, depending on the outside temperature.
- Training in energy management techniques for the Environmental Champion
- A poster campaign supporting the lighting switch-off policy
- Investigating automatic light sensing controls in the main factory

## Worcester

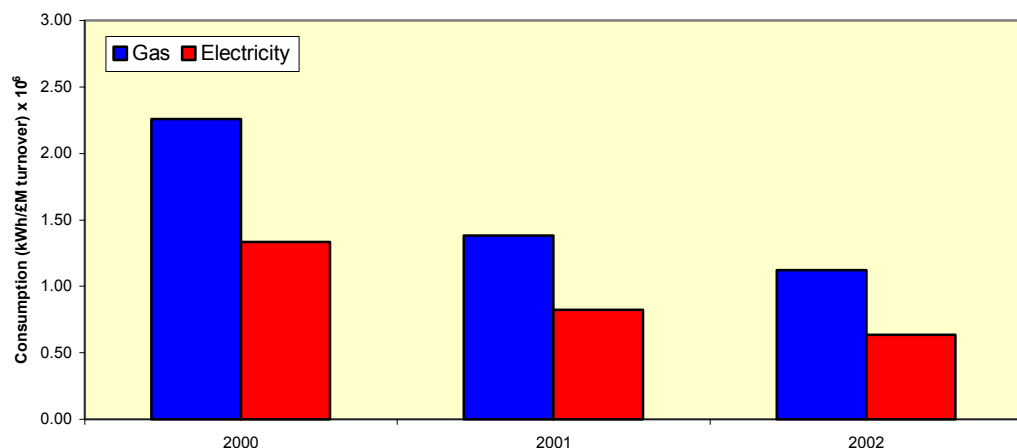
The introduction of the Climate Change Levy on the industrial and commercial use of energy was announced in March 1999, as part of the UK Sustainable Development Policy. The levy playing a significant role in the reduction of industrial CO<sub>2</sub> emissions and is charged on coal, gas, electricity and LPG from April 2001.

DEFRA has set the foundry industry sector energy reduction targets to meet over 10 years. Within this time the reduction in energy is tracked and reported to DEFRA every two years to show that Worcester are meeting their agreed reduction targets. The target is based on the amount of energy used in kWh per tonne of finished product.

For the production foundry the target for 2002 was a reduction of 2.4% kWh/tonne. The actual achieved reduction was 15.5%. For the low volume foundry the target for 2002 was a reduction of 0.87% in kWh/tonne. The actual achieved reduction was 9.88%.

In September 2002 the two foundries completed their first target period for achieving the 2.4% reduction on energy at the production foundry. The actual achieved reduction was 15.5%. At the low volume foundry the target reduction was 0.87%. The actual achieved reduction was 9.88%. Both sites will continue with the levy agreements for the second target period due to end in September 2004. A new management program will be set up in 2003 with the objective of meeting the second target period reduction.

### Worcester Energy Consumption



At Worcester, electricity is used to power foundry machinery and to light the office areas. Gas is used to melt the aluminium in the furnaces and to burn off the resins in the thermal oxidation process of the thermal sand reclamation units. Both energy consumptions vary with levels of production.

The main measures and initiatives taken to achieve the energy reduction in 2002 were

- A reduction in plant air pressure resulting in the air compressors using less energy.
- Installation of recuperative burners on both the phase A & C TSR's. The new burners recuperate the heat from the TSR exhaust gasses and reuse it to heat air and gas streams within the TSR. Previously energy was used to heat these gas streams therefore this energy is now greatly reduced with the introduction of the hot air.
- A new variable speed air compressor was installed in the large foundry. The compressor only uses the energy it requires and it varies its speed dependent on the demand for air instead of running at a constant high speed.
- A plant shut off policy was implemented in Phase A.

## 5. Environmental Contacts

**For further information regarding any aspect of Cosworth Technology Limited's environmental performance please contact ;**

Ian Riggs,  
Group Quality Director  
Cosworth Technology Limited  
Costin House  
St James Mill Road  
Northampton  
NN5 5TZ

Tel : ++ 44 (0) 870 157 3260  
Fax : ++ 44 (0) 870 157 3138  
e-mail : [iriggs@cosworth-technology.co.uk](mailto:iriggs@cosworth-technology.co.uk)



Philippa Bass,  
Group Health, Safety & Environmental Advisor  
Cosworth Technology Limited  
Shire Business Park  
Wainwright Road  
Worcester  
WR4 9FA

Tel : ++ 44 (0) 870 157 3616  
Fax : ++ 44 (0) 870 157 3670  
e-mail : [pbass@cosworth-technology.co.uk](mailto:pbass@cosworth-technology.co.uk)



Anna Broadhurst,  
Quality Leader – Northampton  
Cosworth Technology Limited  
Costin House  
St James Mill Road  
Northampton  
NN5 5TZ

Tel : ++ 44 (0) 870 157 3371  
Fax : ++ 44 (0) 870 157 3138  
e-mail : [abroadhurst@cosworth-technology.co.uk](mailto:abroadhurst@cosworth-technology.co.uk)



The next externally verified statement is scheduled for March 2004.

### Verifier's declaration

"Further to consideration of the documentation, data and information resulting from the company's internal procedures examined during the verification process at Cosworth Technology Limited's facilities at Northampton, Wellingborough and Worcester, it is evident that the environmental policy, programme, management system review (or audit procedure) and environmental statement meet the requirements of Regulation 761/2001 (the EMAS regulation)"

Signed

Amanda Thorpe

Feb 28<sup>th</sup> 2003

SGS United Kingdom Ltd.  
Rossmore Business Park  
Ellesmere Port  
South Wirral  
England CH65 3EN  
Accreditation Number:UK-V-0007