John Crane Ireland Ltd.

Engineered Sealing Systems

EMAS

VALIDATED INFORMATION

IRL-000001

Site Environmental Statement 2003

Site Environmental Statement *(2004 Codicil)*
Site Environmental Statement *(2005 Codicil)*

for EMAS

- the Eco-Management and Audit Scheme

John Crane Ireland Ltd.

Engineered Sealing Systems

Site Environmental Statement 2003 for EMAS

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EMAS VERIFIED ENVIRONMENTAL MANAGEMENT IRL-000001

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1.0. Introduction

1.1. This is the EMAS Site Environmental Statement for John Crane Ireland Ltd. (hereafter referred to as the Company) which operates under the John Crane Division of the Smiths Group.

1.2. smiths (http://www.smiths-group.com) is a forward-thinking, focused engineering company with market leading positions worldwide in it's four chosen areas of specialisation. With customers ranging from defense contractors to petrochemical companies to hospitals, the businesses share a common philosophy. They anticipate and satisfy customer needs through innovation, partnership and global scale.

"We anticipate and satisfy customer needs through innovation, partnership and global scale."

1.3. Founded in 1851 by Samuel Smith, as a family clock and watch-making business, Smiths is now the UK's leading specialist engineer, operating internationally in four distinct sectors:

1.4. **Aerospace** (avionics systems and equipment); **Medical** (single use devices and equipment for anaesthesia/respiratory care and infusion therapy); **Sealing Solutions** (mechanical and polymer seals); and **Industrial** (electrical interconnect systems).

1.5. Within the Sealing Solutions Group, the John Crane Group (http://www.johncrane.com), with over 9,000 employees in 47 countries, is the recognized world leader in mechanical seals and sealing systems.

1.6. This Site Environmental Statement is the means by which the Company can communicate to the public it's progress in managing and improving the environmental impacts of it's activities.

1.7. The very nature of it's products intrinsically puts the Company in a unique position to contribute to environmental protection worldwide. Reducing emissions is serious business. Each year the process industry faces tougher emissions regulations and is forced to find increasingly effective sealing technology. The Company is dedicated to minimize emissions and extend mean time between seal failure for it's customers.

1.8. In recognition of this responsibility, the Company actively pioneers environmental awareness and the Shannon facility is justifiably proud of it's commitment to environmental issues.

1.9. In 1993, the Company was audited by SGS Yarsley, to the requirements of BS 7750 and was awarded the Green Dove Award in recognition of it's achievements. At that point the Company (operating as EG&G Sealol, Shannon) had the distinction of being the fifth company in the world and the first mechanical engineering company to have successfully achieved the BS 7750 standard.

1.10. During 1994, the Company (operating as EG&G Sealol, Shannon) participated in the EG&G Corporation Waste Minimization (WARP) Program and was awarded 1st prize in the category of "Small Industrial Division Worldwide".

1.11. In 1995, the Company received it's formal BS 7750 certification (back-dated to September 1993).

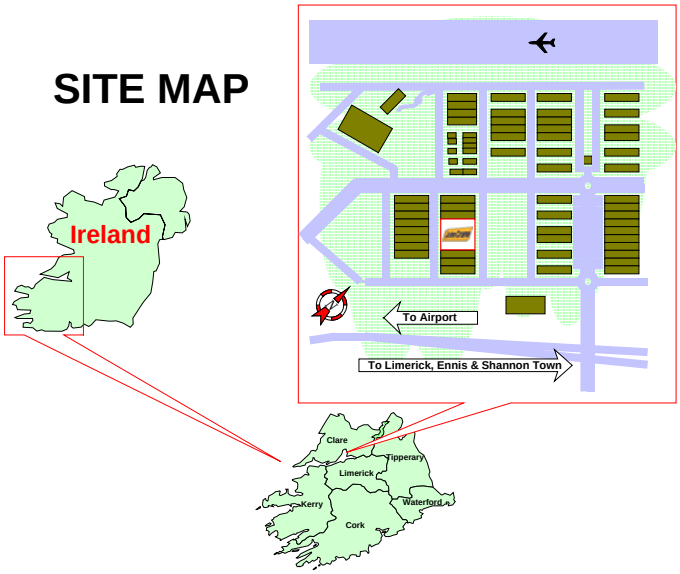
1.12. Also in 1995, the Company (operating as EG&G Sealol, Shannon) became the first company in Ireland to achieve accreditation under EMAS - the Eco-Management and Audit Scheme.

1.13. The year 1996 again brought the Company to the forefront of environmental achievement when it was firstly accredited with the draft international standard DIS ISO 14001 and later the same year to the now formalized ISO 14001 environmental standard. The certification to this standard was backdated to September 1993 as the environmental management system (EMS) in place at that time satisfied the requirements of the ISO 14001 standard.

1.14. Completing a very successful year the Company again participated in the EG&G Waste Minimization (WARP) Program 1996 and was awarded 1st prize in the category of "Small Commercial Division Worldwide".

1.15. Since 1996, the Company has striven to maintain and improve on it's environmental standards in the face of global rationalisation of both the business and the workforce.

1.16. Should the reader require clarification on any item contained in the Statement, or indeed any additional information not already included, please do not hesitate to contact me.



Signed:

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Postal address: **John Crane Ireland Ltd.,** Shannon Free Airport, County Clare, IRELAND.

2.0. Industrial Activities

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2.1. John Crane Ireland Ltd. manufactures a range of mechanical shaft seals, which have a very diverse usage; from inexpensive water pump seals to sophisticated chemical and refinery type seals.

2.2. Group headquarters is in Cranston, Rhode Island, U.S.A.

2.3. Since 1982 the Company has been located in Block T of the Shannon Industrial Estate and occupies Bays 53, 54, 55 and 56. The 85,000 sq. ft. Shannon plant employs approximately 160 people.

2.4. An investigation of this site showed no evidence of contamination by the previous occupiers (an American based textile company, Lana Knit / Butte Knit), nor are there any underground storage tanks on the site.

3.0. Environmental Management System

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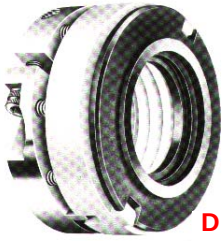
3.1. The Company's Environmental Management System (EMS) is managed through two avenues:

- Environmental Committee Meetings and.....
- 'Notepad' - an electronic diary of environmental issues.



D

P.T.F.E. bellows seal for strong corrosives

3.2. The Company's main objective is to operate and maintain this manufacturing facility in a manner consistent with the best environmental practices, taking account of responsibilities to it's 'stakeholders' who are;

- It's staff,
- The community at large,
- It's customers,
- It's parent company,
- It's suppliers.

3.3. Environmental programmes are in place to manage all waste material in the safest and most efficient manner to protect employees, the public and the environment.

3.4. It is the Company's goal to maintain it's environmental management system (EMS) in conformance with ISO 14001 and EMAS.

3.5. The Company has established an environmental management system (EMS) which ensures that the effects of the activities of the organization conform to it's environmental policy and associated objectives and targets. This is achieved through senior management commitment to environmental awareness among all employees.

3.6. In addition to this Site Environmental Statement, a number of other policy and performance documents are maintained:

E

Compact welded bellows seal for extreme temperature service

3.7. **The Environmental Manual (EM-1)** documents the Company's policies and objectives in relation to it's Environmental Management System.

3.8. **The Environmental Register of Regulations and Effects (ERRE-1)** maintains records of all legislative, regulatory, and policy requirements including actual directives, regulations and amendments. It also addresses all direct and indirect environmental effects.

3.9. **The Control & Monitoring Manual (CMM-1)** describes and catalogues the controls and checklists used to operate and maintain the Environmental Management System (EMS)

4.0. **The Environmental Procedures (EP-1 to EP-15)** address in detail the environmental effects (both direct and indirect) attributable to the manufacturing processes, use of materials and waste management processes (including waste minimization and recycling).

4.1. **"Notepad"** is the tool used for reporting on objectives and targets. All ongoing continuous improvement is recorded here.

4.2. An **Environmental Committee**, representative of all departments and accessible to all employees, meets on a regular basis to evaluate progress and set targets for continuous improvement.

4.3. The Company's EMS is audited regularly through a system of both internal and external audit programmes.

5.0. Company Policy

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5.1. POLICY STATEMENT

Doc. No: QD104-02
Date: 29-Nov-2002

John Crane Ireland Ltd.

Policy Statement

It is the policy of John Crane Ireland Ltd. to manufacture and supply seals which conform to specified standards of quality whilst also minimising and controlling our resource usage, polluting emissions and waste, with due regard to the safety and welfare of all employees.

The Management Team of John Crane Ireland Ltd. ensures that the proper managerial,technical and administrative controls operate. These, in addition to the regular review of the objectives set for continuous improvement, enable this policy to be maintained under both normal and abnormal operating conditions.

It is the policy of John Crane Ireland Ltd. to ensure that all personnel involved in the Company's operations,have appropriate training to ensure that each individual concerned understands the company policy, the work practices, the requirements of manufacturing and supplying to the Company/customer standards and environmental aspects of his/her responsibilities.

It is the responsibility of all John Crane Ireland Ltd. employees to support and apply those sections of the Company's environmental and quality policies pertaining to their activities within the Company. They must know how to initiate corrective actions on issues and concerns where and when appropriate.

John Crane Ireland Ltd. conforms to all regulatory requirements, and to the Quality and Environmental standards and practices specified by ISO 9001:2000, ISO 14001 and EMAS. This policy, together with the Environmental Statement will be made publicly available on request.

Our policy also embraces our relations with our suppliers, with whom we promote and implement processes and procedures which promote better environmental practices.

It is the policy of John Crane Ireland Ltd. to continually strive to improve quality and environmental performance.

Cathy Colgan
General Manager

Date : 29/Nov/2002

6.0. Environmental Effects

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6.1. As part of it's Environmental Management System, the Company recognises the need to identify its impacts on the environment.

6.2. The criteria used for rating the significance of direct and indirect environmental effects are;

- the degree of hazard of the effect being considered and.....
- the potential effect involved.

Jet engine mainshaft seal used in commercial and military aircraft.

6.3. The degree of hazard is a function of the chemical / physical properties of the substance(s) and the quantities involved.

6.4. The potential effect will be determined by the existence of targets and their sensitivity.

6.5. Environmental effects are classified under three categories:

- ❖ Class A - Major immediate environmental effect
- ❖ Class B - Intermediate environmental effect (May be serious but not immediate)
- ❖ Class C - Minor environmental effect

6.6. Those effects falling within Class A are deemed to be significant for the purposes of EMAS however Classes B and C are also managed within the Company's EMS.

6.7. An outline of all direct environmental effects, together with their classification (A, B or C), is held in the Company's Environmental Register of Regulations and Effects. Detailed information relating to these effects is contained in the Company's Environmental Procedures.

6.8. Indirect environmental effects are documented, in detail, in the Company's Environmental Register of Regulations and Effects.

6.9. For public information, any interested party may inspect the records of the Company's Environmental Management System (EMS) provided reasonable notification is given in this respect and that no unfair advantage may be gained by it's competitors. The records will be made available at the Company's premises.

7.0. Manufacturing Processes and their Direct Environmental Effects

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7.1. In this section the significant direct environmental effects of each process are identified and classified. A synopsis of the Company's methods of addressing these effects is included.

7.2. The activities involved in the manufacture of products may be grouped under the processes as outlined in the following table.

7.3. It should be noted that not all processes apply to each product line, but the following sequence is generally typical of the production processes.

No.	*Process*	*Effect*	*Class*	*Managed*
1.	**Metal Machining** (turning, drilling, milling and tapping) Metal bars/tubes are machined to form component parts.	Generation of Metal Swarf and Bar Ends waste	B	Collected for recycling by licensed contractor.
		Use of Mineral, Gear & Hydraulic Oil	A	This effect is minimised through efficient and regular servicing of machinery.
		Generation of waste oils	A	Collected by licensed contractor and used as fuel for incineration purposes.
		Machine Coolant & Water Based Oil Condensate	A	Collected by licensed disposal contractor. *(As a back-up arrangement, water and oil phases may be separated by an ultrafiltration process developed in-house). Water is then re-used as a dilution medium for fresh coolant. Oil is collected by licensed contractor and used as fuel for incineration purposes.)*
2.	**Metal Pressing** This process involves stamping 'bellows plates' from metal foil on hydraulic presses.	Generation of Metal Foil Waste	B	Collected for recycling by licensed contractor.
3.	**Metal Acid Pickling** This is a cleaning process involving immersion of metal 'bellows plates' in an acid solution prior to their being welded together.	Use of Acids	A	Storage, handling & transportation hazards are understood.
		Generation of Waste Acid	A	Disposed of under licensed conditions by licensed contractor.
		Generation of Acid Scrubber Emissions	B	Process emissions sampled. All are within accepted safety parameters.
		Use of Methanol	B	Stored in closed metal container in a suitably bunded area. Used in very small quantities and under controlled conditions.
4.	**Metal Computerized Tig Welding** Metal 'bellows plates' are welded together to form the 'bellows stack'. Bellows 'ends' (from the metal machining process) are then welded to the 'bellows stack'.	-		There are no significant effects in this area.
5.	**Sealide** ™ (silicon carbide) **/ Carbon / Ceramic Machining** (grinding and slotting) These materials are machined to form the sealing faces for the various product groups.	Generation of Sealide Coolant Effluent	B	Diluted and released to drain under Licensed conditions.
		Use of Mineral, Gear and Hydraulic Oil	A	This effect is minimised through efficient and regular servicing of machinery.
		Generation of waste Mineral, Gear and Hydraulic Oil	A	Collected by licensed contractor used as fuel for incineration purposes.
6.	**Lapping and polishing** of metal, sealide ™ (silicon carbide), carbon and ceramic components. This process produces a smooth (lapped) surface finish by abrasively removing (lapping) material from the sealing faces of metal, sealide™ (silicon carbide), carbon and ceramic components.	Generation of Lapping Sludge	A	Disposed of by licensed contractor.
		Generation of Bakelite Sludge	A	Disposed of by licensed contractor.
		Use of Lapping Oil	A	Recycled within the process.
		Use and subsequent disposal of Rust Inhibitor	B	Diluted within the process and released to drain.
		Use of Acetone	B	Stored in specifically designed bench cans and in a suitable bunded area. Acetone is used in very small quantities and under controlled conditions.

No.	Process	Effect	Class	Managed
7.	**Heat Treatment** This process is used to improve the resilience of certain metal components when in operation	-	-	There are no significant effects in this area.
8.	**Assembly** There are a number of assembly areas within the plant. These areas, as the name suggests, are where the final assembly of the product is carried out prior to packing and shipping.	-	-	There are no significant effects in this area.
9.	**Packing / Shipping / Receiving** All product, raw material and components including MROs (maintenance, repair and operating supplies) entering, or leaving, the facility, pass through this area.	Use of Cardboard	C	All boxes purchased are manufactured from 90% recycled cardboard.
		Waste Cardboard	C	Recycled by licensed contractor.
		Shredded paper received from suppliers as a packing medium	C	This is collected for re-use as packaging by a local rehabilitation workshop for their pottery products.
		Polystyrene packing chips received from suppliers as a packing medium	B	These are stored for re-use by another local industry.
		Timber waste	C	Wooden pallets are recovered by hauliers / transport agents. Wooden boxes received from suppliers are collected for re-use by a local rehabilitation workshop. Other timber waste (e.g. broken pallets, etc.) is disposed of through a licensed contractor.
10.	**Administration** This activity collectively groups the administrative functions of Sales, Production, Purchasing, Accounts, Human Resources, Documentation Control and Quality Assurance	Purchasing	C	A policy exists in relation to purchasing environmentally friendly products.
		Waste Paper	C	Recycled by licensed contractor
		Printer Ribbons	C	Recycled by licensed contractor
11.	**Miscellaneous** This heading is intended to cover any activity, or process, not covered under the previous headings (e.g. garden maintenance, window cleaning, painting, etc.)	Energy Consumption	A	} The Company's policy commits the organization to minimization of these effects through quality control and environmentally responsible manufacturing. *(* As this culture is throughout the organization, it is addressed in all the procedures to varying degrees.)*
		Water Consumption	A	
		Raw Material (Incl. Packaging)	C	
		Heating Oil	A	Storage tank is suitably bunded. Use of Dipetane additive reduces polluting emissions.
		Drinks Cans	C	Recycled
		Fluorescent Tubes	A	Disposed of by licensed contractor.
		General Waste	C	Collected by licensed contractor for land-fill.
		Preventive Maintenance	C	All contractors / sub-contractors undergo an Environmental Induction Training Programme. Environmental risks associated with lack of preventive maintenance have been assessed and addressed.

8.0. Emissions

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8.1. **ACID SCRUBBER EMISSIONS**

8.1.1. Emissions from the Metal Acid Pickling process (outlined on page 6 of this report) are scrubbed with water prior to extraction to atmosphere via a centrifugal fan.

8.1.2. The acid scrubbing unit is connected to a small-scale fume cupboard and has the potential to produce low levels of acid fumes as an emission.

8.1.3. These emissions were independently analyzed in July 1994 by Forbairt, Shannon, who reported;

> *"The level of emissions to the environment from this process are negligible. This indicates that the water scrubber presently in use is working efficiently. Analysis of the absorbent solutions did not detect Hydrofluoric or Nitric acid concentrations at the limit of detection for the particular parameter."*

B

Low cost seal for pumps and compressors

8.1.4. Further sampling of emissions from this process, undertaken in March 2000, confirmed that acid concentrations remain below detection level.

8.2. **BOILER STACK EMISSIONS**

8.2.1. The Company operates two industrial boilers for the purpose of central heating and hot water generation.

8.2.2. Emissions from both boilers were independently analysed in March 1997 by Forbairt, Shannon, who reported;

> *"The emission values found are typical for oil burning boilers of this type and indicate that the boilers are running efficiently. The levels are well within accepted emission standards and should not have a significant environmental impact."*

8.2.3. Ongoing monitoring is carried out as part of the annual servicing of these boilers to ensure efficiency and legal compliance.

9.0. Discharges

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9.1. **INDUSTRIAL EFFLUENT**

9.1.1. Part of the silicon carbide (Sealide™) grinding process involves the intermittent discharge of coolant under license to local authority sewer.

9.1.2. Sealide™ coolant (a cutting medium comprising 99% water and 1% rust inhibitor) is further diluted on discharge at a 12:1 ratio using re-circulated process cooling water before reaching the sewer.

9.1.3. This effluent discharge is monitored on a daily basis by the Company's Plumbing Contractor and further independent monthly sampling and analysis is carried out on a monthly basis to ensure legal compliance.

9.1.4. Results of this analysis are advised to the Local Authority.

9.1.5. The Local Authority estimate that 95% of all water supplied is returned as industrial effluent.

9.2. **SANITARY SEWAGE**

9.2.1. Sanitary sewage is discharged to the local authority sewer.

10.0. Indirect Environmental Effects

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10.1. The indirect effects of the Company's products arise from their use and subsequent disposal. The use of the product is to prevent accidental release of substances into the environment. This may be regarded as an indirect positive effect.

10.2. The disposal of the product at end-of-life is not regarded as a significant effect. The Company is prepared to repair, refurbish or re-cycle returned product provided it has been cleaned of any potentially harmful contaminants. Alternatively, the product is itself recyclable, with the possible exception of elastomer components.

10.3. The Company measures the indirect environmental effects of it's suppliers against our own criteria (i.e. degree of hazard and potential effect). We classify all indirect effects under Class B – Intermediate environmental effect.

"We measure the indirect environmental effects of our suppliers against our own criteria (i.e. degree of hazard and potential effect)."

10.4. In the context of the supplier's production, the quantities produced for the Company are not significant. Class B allows the Company to evaluate the effects whilst recognising it's inability to influence them to any significant degree.

10.5. Detailed information regarding the processes involved and the environmental effects of these suppliers / disposal agents is contained in the Company's Environmental Register of Regulations and Effects (ERRE-1).

11.0. Performance Figures and Waste Minimization

11.1. **ENERGY**

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11.1.1. The Company is aware that energy demands directly effect the environment through the consumption of fossil fuels which give rise to the creation of greenhouse gasses. These are a major contributor to the phenomena of global warming.

11.1.2. Energy conservation / awareness policies were already in place at the time of the creation of the Company's Environmental Management System in the early 1990's and consumption figures have been maintained and monitored since then.

11.1.3. Four activities on site have been identified as directly impacting energy demands:

- Use of Electricity
- Use of Central Heating Oil
- Use of LPG (Liquid Propane Gas) to power a forklift
- Use of Diesel Fuel to power a small van

11.1.4. The Company currently manages energy consumption primarily through employee and contractor awareness.

11.2. **Electricity consumption**

11.2.1. On all machinery within the facility, electricity is managed as effectively as possible within manufacturing constraints and, where possible, machines, lights, etc. are switched off when not in use.

11.2.2. A policy of replacing existing lighting fixtures with energy efficient lighting has been implemented within the facility over the last three years and is currently nearing completion.

11.2.3. The possibility of introducing a computer controlled energy management system was investigated. However, the payback period was found to exceed corporate guidelines governing return of investment on capital expenditure. With the de-regulation of electricity suppliers in Ireland, it is now proposed to re-evaluate this issue as a target for the coming year.

11.2.4. Electricity consumption figures shown below comprise day and night units excluding power correction factor.

11.3. Heating Oil

11.3.1. As previously mentioned, the Company operates two industrial central heating boilers.

11.3.2. The inclusion of an additive in the oil encourages more efficient combustion and is claimed to reduce fuel consumption by 15% (proven by long term controlled tests in the USA).

11.3.3. The introduction of a timer control system has contributed to a substantial (25%) saving in the amount of heating oil consumed during 2002 as compared with 2001.

11.4. LPG (Liquid Propane Gas)

11.4.1. The Company operates a forklift truck, which is powered by LPG.

11.4.2. This is a much cleaner fuel than is used in a diesel powered forklift and with greatly reduced exhaust gas emissions.

11.4.3. Emissions are further minimised through regular servicing of the vehicle.

11.4.4. For 1998 thru 2002 usage is calculated on the basis of a 36 Litre cylinder of Propane gas per working week (based on 48 weeks per year).

11.5. Diesel Oil

11.5.1. Company transport comprises one 1.9 Litre Diesel powered van which is used infrequently for local errands.

11.5.2. The van is serviced on a regular basis to ensure efficient operation and minimise emissions.

	1998	1999	2000	2001	2002	*Target for 2003*	Remarks
Electricity Consumed	2031960 KWH	2308920 KWH	2448920 KWH	2212760 KWH	2239560 KWH	*2240000 KWH*	Electricity usage is directly proportional to business. There is no major increase, or indeed decrease, envisaged for the current year.
Heating Oil Purchased	113650 L	90920 L	90920 L	90920 L	68190 L	*68190 L*	Target is to maintain the 2002 level for 2003.
LPG Purchased	1800 L	1800 L	1800 L	1800 L	1800 L	*1800 L*	This figure is our best estimate for LPG purchases calculated on the basis of a 36 litre cylinder (Propane) per working week (based on 50 weeks/year).
Diesel Oil Purchased	1000 L	1000 L	1000 L	1000 L	1000 L	*1000 L*	This figure is our best estimate for diesel oil purchases calculated on the basis of a 20 Litres per working week (based on 50 weeks/year).

11.6. WASTE MANAGEMENT

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11.6.1. The Company monitors and manages all waste produced as part of it's focus an minimisation and recycling.

11.6.2. The composition of various wastes is described below and quantities for key wastes are shown on the table on page 12.

11.6.3. **Lapping Sludge (Class A)** is a sludge comprising Alumina Oxide, Macron Oil and Metal Particulate and containing trace elements of lead, cadmium, copper, chromium, zinc and mercury.

- Lapping sludge is a by-product of the lapping process and, as such is dependent on:

    a) the number of pieces lapped
    b) the number of lapping cycles (not calculable)
    c) the amount of lapping required per piece (not calculable)

- The amount of lapping sludge produced is retrospectively calculated from the Certificate of Disposal.

Spring driven pump seal for process and marine service

11.6.4. **Bakelite Sludge (Class A)** is a water-based sludge (as compared to the oil based lapping sludge). It contains the same metal particulate and trace elements as Lapping Sludge albeit in lesser concentrations. The bakelite sludge, which was previously included with lapping sludge for disposal, is currently being stored on site with a view to using an alternative disposal method because of difficulties associated with the settlement process.

11.6.5. **Fluorescent Tubes (Class A)** contain mercury, cadmium and other toxic chemicals. The disposal of such toxic waste is governed by both Irish and EC Regulations and Local Authorities will not accept gas filled lamps at their landfill sites.

11.6.6. **Waste Acid (Class A)** generated by an acid pickling process comprises 11% nitric acid, 4.9% hydrofluoric (HF) acid and trace elements of copper. The mixture has a pH of 2.8.

11.6.7. **Industrial Effluent (Class B)** is billed for on the basis of a value formulated by the Local Authority, SFADCo., representing an assumption that 95% of water supplied is returned to sewer.

11.6.8. **Sanitary Sewage (Class A)** is included with Industrial Sewage.

11.6.9. **Waste Mineral Oil (Class A)** is disposed of through a licensed contractor.

11.6.10. **Waste Soluble Oil (Class A)** is disposed of through a licensed contractor.

11.6.11. **Waste Metal (Class B)** recycling figures represent specific grade metals for which a financial transaction takes place. A small amount of non-specific metallic waste is also recycled though not quantified above. It is not possible to accurately quantify the amount of metals purchased by the Company as these comprise:

(a) Metal Foil Stock bought in lbs. for the metal pressing process. This process intrinsically generates approximately 90% scrap, all of which is, in turn, recycled.

(b) Metal Bar Stock is bought in inches and weights vary depending on size and material. Where possible, the purchase of bar stock has been eliminated in favour of tube (see below).

(c) Metal Tube Stock is bought in inches and weights vary depending on size and material. The use of metal tube has greatly reduced the scrap rate traditionally incurred by boring out metal bar stock. The change from bar stock to tube has also allowed the discontinuation of a machining operation, i.e. boring, with the consequent energy savings involved.

(d) Aluminium drinks cans are collected at a number of collection points throughout the facility and are recycled with the proceeds going to local charities.

11.6.12 .**Miscellaneous solid waste:** This is classed as mixed municipal waste. Volume is estimated for 50 collections per year. Skip (FEL Medium Closed) calculated at 535 M^3 per annum. Content comprises 70–80% paper wipes, small amounts of polyurethane foam packaging, small amounts of rigid plastic waste from consumable packaging, small amounts of mixed packaging waste, small amounts of canteen food waste and small amounts of absorbents.

11.6.13 .**Cardboard waste:** Bought-in cardboard products are manufactured from 90% recycled material and are in themselves recyclable. The use of cardboard has been promoted as an alternative to both timber and polystyrene packaging. Cardboard packaging received from suppliers, together with other waste cardboard, is compacted and baled in house and subsequently collected by a licensed recycling company.

11.6.14 .**Paper waste:** The majority of waste paper is removed for confidential shredding and recycling by a licensed contractor. A small amount of waste paper is shredded on site. This is combined with unquantified shredded paper received as packaging from suppliers and is collected by a local rehabilitation workshop for use as a packing medium for pottery products.

11.6.15.**Timber waste:** Wooden pallets are recovered by haulers / transport agents. Wooden boxes are re-used by a local rehabilitation workshop. Other timber waste is disposed of through a licensed contractor.

11.7. REDUCTION PROGRAMMES

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11.7.1. Reduction programmes are in place for all materials purchased. However, the main targeted improvement programmes for EMAS reporting are listed below.

11.7.2. For the years 2000 - 2002, environmental targets were set to maintain or improve on previous years levels for items listed below.

11.7.3. In general, improvement / reduction programmes have been in place for a long time and targets have been achieved. As part of the continual improvement process the current focus is to maintain these levels despite fluctuations in production.

	1998	1999	2000	2001	2002	*Target for 2003*	Remarks
Water Consumed	37413 m^3	28077 m^3	27740 m^3	21260 m^3	23959 m^3	*24000 m^3*	Increase for 2002 attributable to introduction of new water cooled furnace. It is hoped to maintain this level despite a projected 5% increase in furnace throughput.
Lapping Sludge Generated	1867 kg	1424 kg	913 kg	1386 kg	960 kg	*960 kg*	Reduction targets achieved for 2002. Target is to maintain this level for 2003.
Acid Purchased	170 L	195 L	240 L	194 L	142 L	*142 L*	Reduction targets achieved for 2002. It is now accepted that acid usage has been minimised proportional to production volume. Target is to maintain this level for 2003.
Acetone Purchased	1227 L	614 L	818 L	1023 L	820 L	*820 L*	Reduction targets achieved for 2002. Target is to maintain this level for 2003.
Metal Scrap Generated	48727 kg	45623 kg	55499 kg	47181 kg	42083 kg	*37880 kg*	Reduction targets achieved for 2002. Target is to reduce by a further 10% for 2003.
Coolant Purchased	3280 L	2895 L	4000 L	4000 L	3000L	*3000 L*	Reduction targets achieved for 2002. Target is to maintain this level for 2003.
Rust Inhibitor Purchased	2665 L	2050 L	2255 L	1635 L	2665 L	*2000 L*	Reduction target not achieved. Increase is attributable to three factors: (1) relocation of machinery involving complete replenishment of rust inhibitor, (2) addition of two new Okamato surface grinding machines and... (3) establishment of safety stock.

11.7.4. In addition to the above reduction / waste minimisation targets the Company has a number of ongoing objectives (see below) which are of a more investigative nature.

- **To investigate appropriate methods of measurement to clearly demonstrate improvements in environmental performance.**

Over recent years the company has had to adapt into a high volume standard and non-standard product manufacturing facility in which fluctuating production levels and product mix ratios create difficulty in normalising baselines for reported data. Efforts are ongoing to identify measurement techniques which compliment our manufacturing processes.

C

Elastomer-free seal for fluids to +800°F

- **To better calculate the percentage of total waste sent to landfill.**

Current estimates are that the Company re-uses / re-cycles certainly in excess of 85% (and probably in excess of 95%) of all wastes produced. However, the amount of waste sent to landfill is currently estimated based on 50 weekly collections per year of a skip (FEL Medium Closed) regardless of whether, or not, the skip is completely full. As the waste collected is compacted on the collection vehicle with waste from other businesses, it is not possible to calculate the exact amount originating on our site.

- **Investigate the Environmental Impact of Noise arising from activities on site.**

As part of it's continual improvement programme the Company intends to further investigate some of it's less significant environmental effects commencing with noise levels, both on and off site, arising from activities on site.

- **To investigate the environmental credentials of key suppliers.**

As part of it's Vendor Assessment Questionnaire the Company seeks to increase awareness among key suppliers regarding environmental performance. It is proposed to expand on this programme to include all suppliers and to further develop, collate and publicise internally the findings of this survey.

11.8. MRO (Maintenance, Repair and Operating supplies) AND WASTE REDUCTION TRENDS

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11.8.1. The Company is aware of the difficulties in normalising statistical information. Fluctuations reflect the changing nature of the production mix. Also, the relatively small quantities involved (for example the procurement of a 200 Litre drum in December as opposed to January) will have a significant impact on that year's usage figure.

11.8.2. To demonstrate the effectiveness of purchasing initiatives we see how consumables as small as stationary items are being purchased in an environmentally friendly manner. Examples of these are;

- Solvent free correction fluid
- Recycled computer printout paper
- Reusable flipcharts
- Refillable highlighters.
- Recyclable Post-it pads
- Re-inking kits for printer cartridges ***(discontinued with the advent of laser cartridges)***.
- Laser printer cartridges are now recycled.
- Recyclable office paper
- Use of electronic mail to reduce the volume of paperwork generated.
-

11.8.3. Some previous environmental initiatives undertaken by the Company include:

Project	Status
▪ 90% recycled cardboard	Ongoing
▪ Use of tubing lengths instead of solid metal bars	Ongoing
▪ Freon (CFC) replacement	Completed
▪ Re-inking of printer ribbons	Discontinued- laser cartridges have replaced ribbon printers.
▪ Use of recyclable coolants	Ongoing
▪ Polystyrene feet on packing cartons replaced with cardboard	Completed

Project	Status
▪ Elimination of the use of asbestos gaskets	Completed
▪ Reduction in the use of cardboard and skin-film by manufacturing plastic trays in-house which the customer returns to the company.	Ongoing
▪ Reduction in the quantity of oil-dry used by switching to an alternative with better absorption qualities	Ongoing
▪ Elimination of polystyrene fill used in packing by the utilisation of alternative packaging methods	Completed
▪ recyclable packing air bags.	Discontinued
▪ Replacement of polystyrene packs by recyclable cardboard tubes. (The tubes are also made from recycled material.)	Completed
▪ Replace polystyrene packs by using the concept of bulk packaging	Completed
▪ Waste cardboard baling	Ongoing
▪ Automatic coolant distribution system	Ongoing
▪ Elimination of 1.1.1.Trichloroethane	Completed
▪ Recycling of waste timber, pallets, boxes, etc.	Ongoing
▪ Oil/condensate splitter on compressors	Ongoing
▪ Energy efficient cleaning machine	Ongoing - Replaced older machine

12.0. CONCLUSION

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12.1. John Crane Ireland Ltd. has been operating a formal Environmental Management System for over 10 years and this is now the third Site Environmental Statement for EMAS produced by the Company.

12.2. While the EMAS statement focuses on recent performance and targets it should not be forgotten that, in earlier years, some headline improvements were made.

12.3. Because of the maturity of the Company's EMS. the current scale of operations and improvements are more modest while still maintaining the emphasis on continual improvement.

12.4. We hope that this environmental statement demonstrates how a small engineering company can strive to actively promote environmental awareness within the EMAS framework.

G

The original welded metal bellows seal introduced by Sealol

13.0. Next Environmental Statement

INDEX

13.1 It is proposed to audit the EMS on an annual basis and report the findings in a Codicil each year by the 1st March.

13.2. Based on the above criteria the Company's next Interim EMAS Environmental Statement will be submitted for external verification by the 1st March, 2004

13.3. The next full re-write of the EMAS Environmental Statement will be submitted for external verification by the 1st March, 2006.

14.0. Verification

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14.1. John Crane Ireland Ltd. has engaged, as accredited environmental verifier, the services of.....

SGS United Kingdom Ltd.
Rossmore Business Park
Ellesmore Port
South Wirral
England
CH65 3EN

14.2. **SGS Acreditation Number: V - 0007**

15.0. Verifier's Declaration

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15.1.1. *Further to consideration of the documentation, data and information resulting from the Company's internal procedures examined during the verification process, it is evident that the environmental policy, program, management system review (or audit procedure) and the Environmental Statement meet the requirements of;*

REGULATION (EC) No. 761/2001
OF THE EUROPEAN PARLIAMENT
AND OF THE COUNCIL
of 19 March 2001

allowing voluntary participation by organisations in a Community eco-management and audit scheme (EMAS).

Signed: AJ Thorpe

Amanda Thorpe

Date: *February 2003*

High-speed aircraft accessory drive seal

The ornamental water garden at the rear of the factory

John Crane Ireland Ltd.

Engineered Sealing Systems

EMAS
VALIDATED INFORMATION
IRL-000001

Site Environmental Statement

(2004 Codicil) for EMAS

- the Eco-Management and Audit Scheme

1.0. Introduction

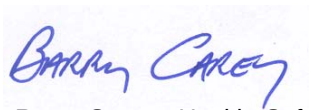
This 2004 Codicil is the interim EMAS Site Environmental Statement for John Crane Ireland Ltd. and, as such, should be viewed as a supplement to the 2003 Site Environmental Statement.

During the year 2003, the Company did not escape the effects of the global recession with total sales, which had remained relatively stable for 2001 and 2002, falling by approximately 5%.

While this reduction may have had some positive impact on the environmental effects of the company, it has not been possible to accurately quantify the impact since, with continuous improvement policies over a long number of years, most effects are now related to the overall operation of the plant and machinery rather than the actual production level.

Notwithstanding this, the Company is satisfied that it has achieved considerable success in it's stated targets for the year. Details of actual performance, together with projections for the coming year, are documented below.

Should the reader require clarification on any item contained in the Statement, or indeed any additional information not already included, please do not hesitate to contact me.

Signed: 

Barry Carey Health, Safety & Environmental Manager

Date: March 2004

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Facsimile: +353 61 472323
Email: carey_b@johncranesealol.com

Postal address: **John Crane Ireland Ltd.,** Shannon Free Airport, County Clare, IRELAND.

2.0. Performance Figures – Energy

The company's performance figures, pertaining to energy consumption for 2003, are documented hereunder.

Also included in this table are the projected energy targets for 2004, which are based on maintaining or improving on the 2003 achievements.

	Actual for 2002	*Target for 2003*	Actual for 2003	Remarks	*Target for 2004*
Electricity Consumed	2239560 KWH	*2240000 KWH*	2213760 KWH	The company exceeded it's target by achieving a 1% reduction on the 2002 level. However, it is felt that this reflects the reduction in business rather than any significant improvement. The target for 2004 is to try to maintain electricity consumption at the 2003 level despite a hoped for increase in business.	*2220000 KWH*
Heating Oil Purchased	68190 L	*68190 L*	68160 L	The company achieved it's target of maintaining purchases of heating oil at the 2002 level thereby consolidating the 25% decrease achieved over the 2001 purchases. The target for 2004 is to maintain purchases of heating oil at the 2003 level.	*68160 L*
LPG Purchased	1800 L	*1800 L*	1980	The company did not achieve it's target. This 10% increase over the target figure is as a result of the acquisition of a second LPG powered forklift truck in November 2003. The figure is our best estimate for LPG purchases calculated on the basis of a 36 litre cylinder (Propane) per working week (based on 50 weeks/yearfor the first FLT and 5 weeks for the second FLT). Next year's target is to maintain the current average consumption level (36 litres/week) for each of the forklift trucks.	*3600 L*
Diesel Oil Purchased	1000 L	*1000 L*	1000L	The company achieved its target which is based on our best estimate for diesel oil purchases for the company van calculated on the basis of a 20 Litres per working week (based on 50 weeks/year). Since no change is envisaged relating to the use of the company van, the target for next year is to maintain the same purchases of diesel oil.	*1000 L*

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3.0. Legislative Non-compliance

One minor breach of the Shannon Development (Local Authority) effluent discharge conditions occurred in January 2003 (COD of 728mg/l against a limit of 600mg/l). Subsequent monitoring for the rest of the year was satisfactory with no other breaches. Changes to the process pipe work and tanks were assessed as the root cause of the COD breach. Shannon Development has taken no action nor commented on this one-off breach of a COD limit. The effluent discharge goes into a foul sewer, which leads to the local treatment works.

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4.0. Environmental Noise Monitoring

A report monitoring external noise levels identified that the ambient external noise levels (60 - 74dB) in the vicinity of the facility exceed the Shannon Development daytime licence parameter of 55 dB. This noise is not emanating from the John Crane facility but rather is a general background noise comprising distant road traffic and a background hum of industrial machinery from other premises on the industrial estate. On receipt of a copy of this report Shannon Development confirmed it's acceptance that John Crane Ireland Ltd. is exercising due diligence in it's efforts to minimise noise levels.

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5.0. Performance figures - Stated Reduction Targets

The figures as detailed in the following table indicate the company's performance in respect of those environmental targets stated in the Site Environmental Statement for 2003.

Also included in this table are the projected targets for 2004, which have been set to maintain or improve on the achievements of 2003

	Actual for 2002	*Target for 2003*	Actual for 2003	Remarks	*Target for 2004*
Water Consumed	23959 m^3	*24000 m^3*	18019 m^3	The company exceeded it's target by achieving a 25% reduction in water consumption for the year. This was as a result of increased awareness and a number process modifications including some closed loop recycling of water and improvements to bunds.	*18000 m^3*
Lapping Sludge Generated	960 kg	*960 kg*	730 kg	The company exceeded it's target by achieving a 24% reduction in lapping sludge generated for the year through a number of process improvements.	*730 kg*
Acid Purchased	142 L	*142 L*	45 L	The company exceeded it's target by achieving a 68% reduction on the amount of acid purchased. This was achieved through an adjustment to the strength and mix ratio of acids used.	*45 L*
Acetone Purchased	820 L	*820 L*	615 L	The company exceeded its target by achieving a 25% reduction in purchases of acetone. This was achieved through an increased employee awareness programme on the potential hazards of acetone and the need to reduce wastage.	*615 L*
Metal Scrap Generated	42083 kg	*37880 kg*	39895 kg	The company failed to achieve it's 10% target but did achieve a 5% reduction in the amount of metal scrap generated.	*37880 kg*
Coolant Purchased	3000L	*3000 L*	3000 L	The company achieved it's target to maintain the amount of coolant purchased at 3000 L.	*3000 L*
Rust Inhibitor Purchased	2665 L	*2000 L*	2255 L	The company did not meet its target of a 25% reduction although it did succeed in reducing by 15%.	*2000 L*

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6.0. Other Environmental Targets

The company also achieved a number of other environmental targets, not previously documented, during the course of 2003 as detailed below:

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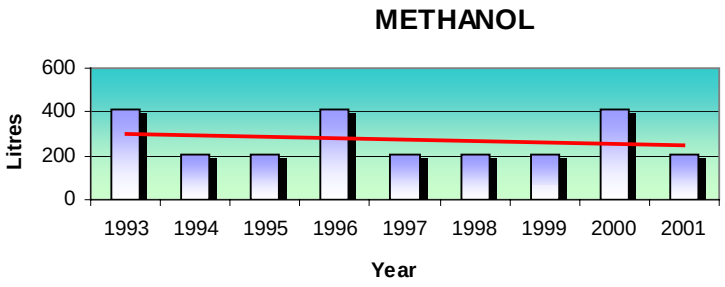
6.1. Methanol

A Methanol minimisation/ elimination programme was implemented during 2002.

It was hoped to eliminate methanol from the acid pickling process completely. This was now possible as a result of more efficient cleaning methods on machined components using more environmentally friendly cleaning agents.



On 20 March 2003, following completion of this project, all remaining unused stocks of Methanol were returned to suppliers J&T Chemicals in Cork.

6.2. *Replacement of Forklift*

In November 2003 the company acquired a second LPG powered forklift truck.

This facilitated the replacement of a battery powered forklift truck and the related battery-charging equipment.

The reasons for choosing an LPG powered forklift truck include:

- Environmentally friendly – Propane is a non-toxic, clean burning fuel with no spillage loss or evaporation into the atmosphere.
- Safety - propane forklift tanks, fuel lines and carburetion components meet or exceed strict specifications. Built-in safety devices automatically shut off the flow of fuel in case of accident.
- Versatility - Propane forklift trucks can be used in indoor and outdoor applications. Propane is the most portable fuel – cylinders can be stored in the existing designated storage yard at the rear of the factory.

The elimination of the battery-charger has removed the environmental and personal dangers associated with this process, i.e. battery acid (sulphuric acid), hydrogen and other battery gas release and the obvious fire hazard potential.

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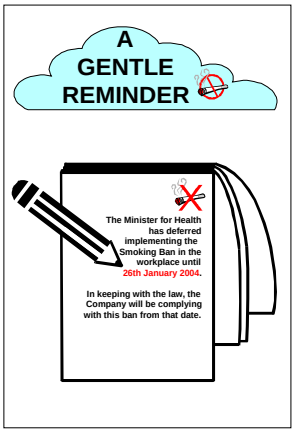
6.3. *Smoking in the workplace*

On 16th October 2003, the Minister for Health published legislation prohibiting smoking of tobacco products in a place of work.



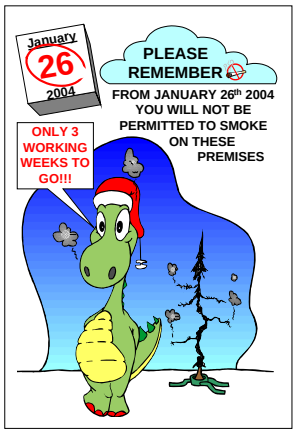
These regulations were due to come into operation on 26th January 2004.

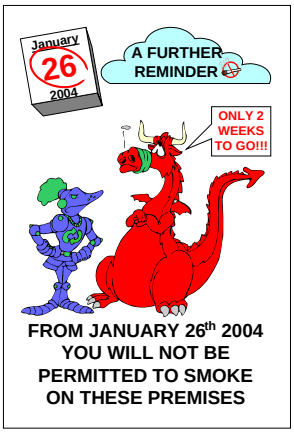
The purpose of the regulations is to protect people in the workplace from the effects of passive smoking.

In an effort to promote awareness of the forthcoming ban on smoking in the workplace a poster campaign was launched in December 2003.

Despite to probability that the introduction of the new legislation would be delayed, the company adopted a pro-active stance on this issue and implemented a no smoking policy from 26th January 2004.

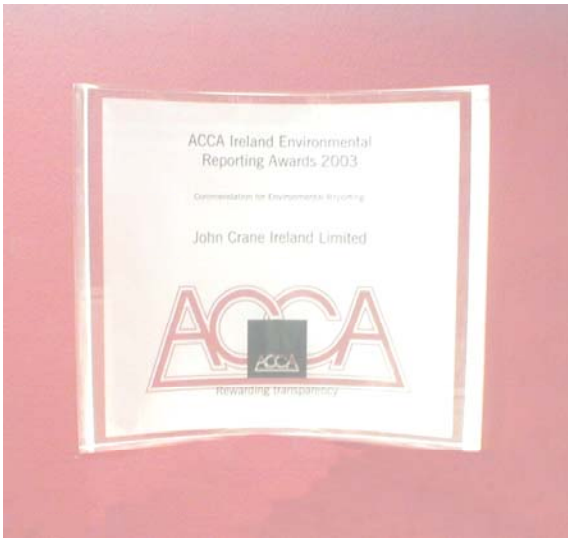
Due to the co-operation of all employees this policy has proven totally successful to date.





6.4. *Environmental Award*

On Wednesday, 03 December 2003, John Crane Ireland Ltd. received national recognition when, at the Association of Chartered Certified Accountants - ACCA Ireland Environmental Reporting Awards 2003 (won by Janssen Pharmaceutical Ltd.) it was one of three companies awarded a commendation for it's "Site Environmental Statement 2003 for EMAS".



The Awards seek to identify and reward innovative attempts to communicate environmental performance.

The "Report of the Judges" was that the document

- Gives clear description of company's activities
- Defines policy at outset
- Includes comprehensive environmental data
- Is externally verified.

Anthony Harbinson President ACCA Ireland, **Dr. Mary Kelly** CEO, EPA, (Environmental Protection Agency) **Donal Buckley** IBEC (judge) (Irish Business Employers Confederation) **Barry Carey** HSE Manager, John Crane Ltd

It was the company's first time entering this competition.

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7.0. *Community involvement*

The company provides assistance to a number of local charitable, and other community organisations in a number of ways.

INDEX

- **Bawnmore Centre**

Proceeds from the recycling of aluminium drinks cans have been donated to the Bawnmore Centre operated by the Brothers of Charity.

The Congregation of the Brothers of Charity is a religious voluntary organisation founded in 1807 to care for and enhance the lives of people with disabilities.

The Brothers of Charity Services in the Mid-West Region provide a range of services, which contribute to the enhancement of the lives of many individuals with intellectual disability and their families.

These include - residential facilities; work training and placement; leisure and lifestyle activities; physical and intellectual training; assessment, advisory and counselling services; family intervention; public awareness and education.

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- **Children's Hospital**

Proceeds from the recycling of inkjets and printer cartridges go to the Temple Street Children's Hospital.

The Children's Hospital, Temple Street was established in 1872 as a hospital for the poor children of Dublin. The hospital has been under the care of The Sisters of Charity for over 100 years and is now one of the major paediatric hospitals catering for children from all over the country.

The Children's Hospital leads the way across a variety of medical specialities. It is the national centre responsible for screening newborn babies for metabolic and genetic disorders. It is also the national centre for neurological, eye, craniofacial, kidney, airways and ENT disorders in children. In addition, the Hospital provides specialised family support units in areas such as child sexual abuse and bereavement counselling and houses the National Sudden Infant Death Register.

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- **Shannon Community Workshops**

Wooden boxes received from suppliers are given to Shannon Community Workshops for packing pottery products.

The Workshops were founded in 1967 as a national prototype for reintegrating people with mental illness into society. In the last decade, the Shannon Community Workshops Ltd. have emerged as a replicable national model and the management now seeks to develop this facility into a European model of excellence.

The Workshops currently provide employment for 50 people in an inclusive sheltered environment. There are 18 directly paid staff, of whom 3 are administrative and 10 have necessary or relevant qualifications. Up to 16 people may be on placement in the workshop through community employment schemes.

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- **Irish Cancer Society**

The company supports the Irish Cancer Society's Annual Daffodil Day Appeal through the sale, at Reception, of daffodil pins to employees.

- **The Irish Heart Foundation**

This organisation is supported through the sale, at Reception, of "Happy Heart" pins to employees.

- **Rehab Foundation**

This group is supported through various raffles facilitated in the company's Eating Area.

- **Local Sporting Organisations**

Direct financial assistance is afforded to a number of local sporting organisations including:

- St. Senan's Rugby Club,
- Wolfe Tone's GAA Club and
- Kilkee Sub-Aqua Club

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8.0. Next Environmental Statement

It is proposed to audit the EMS on an annual basis and report the findings in a Codicil each year by the 1st March.

Based on the above criteria the Company's next Interim EMAS Environmental Statement will be submitted for external verification by the 1st March, 2005.

The next full re-write of the EMAS Environmental Statement will be submitted for external verification by the 1st March, 2006.

INDEX

9.0. Verification

John Crane Ireland Ltd. has engaged, as accredited environmental verifier, the services of.....

SGS United Kingdom Ltd. (Accreditation Number: UK – V – 0007)

INDEX

10.0. Verifier's Declaration

Further to consideration of the documentation, data and information resulting from the Company's internal procedures examined during the verification process, it is evident that the environmental policy, program, management system review (or audit procedure) and the Environmental Statement meet the requirements of;

REGULATION (EC) No. 761/2001
OF THE EUROPEAN PARLIAMENT
AND OF THE COUNCIL
of 19 March 2001

allowing voluntary participation by organisations in a Community eco-management and audit scheme (EMAS).

Signed: AJ Thorpe

Amanda Thorpe

Date: *April 2004*

INDEX

The ornamental water garden at the rear of the factory.

John Crane Ireland Ltd.

Engineered Sealing Systems

EMAS
VALIDATED
INFORMATION
IRL-000001

Site Environmental Statement

(2005 Codicil) for EMAS

- the Eco-Management and Audit Scheme

1.0. Introduction

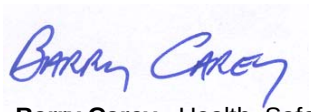
This 2005 Codicil is the second interim EMAS Site Environmental Statement for John Crane Ireland Ltd. and, as such, should be viewed as a supplement to the 2003 Site Environmental Statement and the first (2004) codicil.

The year 2004 showed a 2.7% increase in total company sales over 2003. However, the actual increase in production amounted to 17.1%.

In achieving this increase in production two additional shifts were brought on stream in the Sealide Grinding Department, which accounted for a 26.4% increase in production and in the Bellows Welding Department, which saw an increase of 8.9% in production.

In August 2004 the company took over responsibility for distribution of automotive seals previously undertaken from a UK distribution warehouse. This business is treated as separate to the company's production activities and utilises existing floor space for storage and re-distribution of automotive seals. There are no additional environmental effects associated with this activity.

Should the reader require clarification on any item contained in the Statement, or indeed any additional information not already included, please do not hesitate to contact me.

Signed: 

Barry Carey Health, Safety & Environmental Manager

Date: March 2005

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Facsimile: +353 61 472323
Email: carey_b@johncranesealol.com

Postal address: **John Crane Ireland Ltd.,** Shannon Free Airport, County Clare, IRELAND.

3.0. *Performance Figures – Energy*

The company's performance figures, pertaining to energy consumption for 2004, are documented hereunder.

Also included in this table are the projected energy targets for 2005, which are based on maintaining or improving on the 2004 achievements.

	Actual for 2003	*Target for 2004*	Actual for 2004	Remarks	*Target for 2005*
Electricity Consumed	2213760 KWH	*2220000 KWH*	2140200 KWH	The company exceeded it's target by achieving a 3.3% reduction on the 2003 level. This was achieved despite the introduction of additional night shifts in the Bellows and Sealide Departments in September and October 2004 respectively. The target for 2005 is for a 5% projected increase on the 2004 figure for electricity consumption based on the continuance of the additional shifts.	*2247000 KWH*
Heating Oil Purchased	68160 L	*68190 L*	88190L	The 29.3% increase in the volume of heating oil purchased means that the company failed to achieve it's target of maintaining purchases of heating oil at the 2003 level. This increase is attributable to a faulty meter on the oil storage tank which has since been replaced. As a precautionary measure the plumbing contactor ordered a fill of 5000gals (22730 Litres) on 21 December 2004. It is felt that overall the purchase of heating oil remains unchanged and that usage for 2005 will reflect this. It is anticipated that an additional two fills amounting to 10,000gals (45460 Litres) will be sufficient for the remainder of 2005.	*45460 L*
LPG Purchased	1980 L	*3600 L*	3600	The company has achieved it's target of maintaining the average consumption level of 36 litres /week for each of its two fork lift trucks. It is anticipated that usage for the coming year will not vary considerably and therefore our best estimate for LPG purchases remains at 3600 L. This is calculated on the basis of a 36 litre cylinder (Propane) per FLT per working week (based on 50 weeks/year).	*3600 L*
Diesel Oil Purchased	1000 L	*1000 L*	1000L	The company achieved its target which is based on our best estimate for diesel oil purchases for the company van calculated on the basis of a 20 Litres per working week (based on 50 weeks/year). Since no change is envisaged relating to the use of the company van, the target for next year is to maintain the same purchases of diesel oil.	*1000 L*

3.0. Legislative Non-compliance

One minor breach of the Shannon Development (Local Authority) effluent discharge conditions occurred in August 2004 (BOD of 376mgO_2/L against a limit of 300mgO_2/L). Subsequent monitoring for the rest of the year was satisfactory with no other breaches.

Despite extensive investigation, no direct root cause has been identified. There were no changes to either the system or the procedures. There was no indication that the sample was in any way different from previous samples. Following notification of the failure on 05 September, all pump out lines were re-checked for residual deposits and were flushed out by the plumbing contractor as recommended by PW Quigley & Associates. No measurable contamination was discovered.

Immediate further testing was arranged and this was carried out two days later, on 07 September. Results for this re-testing were satisfactory with BOD reading of 4mgO_2/L.

As it has not been possible to establish a root cause for this anomaly it is, therefore, not possible to formulate any new long term preventive action other than continuance of operator vigilance and conformity to all existing procedures. Ongoing planned monitoring of effluent samples for October, November and December 2004 and also for January and February 2005 has shown no recurrence of the problem.

Shannon Development has taken no action nor commented on this one-off breach of a BOD limit. The effluent discharge goes into a foul sewer, which leads to the local treatment works.

Clare County Council has taken over as the Local Authority for Shannon with effect from October 2004. The Council is currently working through the administration backlog arising from this change over with a view to issuing new licences to all companies in the Shannon Free Zone.

4.0. Performance figures - Stated Reduction Targets

The figures as detailed in the following table indicate the company's performance in respect of those environmental targets stated in the Site Environmental Statement for 2004.

Also included in this table are the projected targets for 2005, which have been set to maintain or improve on the achievements of 2004.

	Actual for 2003	*Target for 2004*	Actual for 2004	Remarks	*Target for 2005*
Water Consumed	18019 m^3	*18000 m^3*	20399 m^3	The company did not achieve it's target. Responsibility for the supply and billing of water was passed from Shannon Development to the Clare County Council in September 2004. Since that time no water consumption figures have been made available to the Company from Clare County Council. The company's plumbing contractor has, however, managed to gain access to the water meters servicing the facility and readings for the end of March 2005 have been used to calculate actual water consumption for October, November and December 2004. The increase of 13% in water consumption for 2004 is attributable to the fact that the bulk of water consumed is directly related to the Sealide Grinding Department which experienced a 26.4% increase in production. The bulk of this increase occurred over the latter half of the year. It is anticipated that increased production levels, and consequent water consumption levels, will be maintained throughout 2005 giving a forecasted water consumption of 23500 m^3 for the year. Our target for 2005 is not to exceed this level of increase and to reduce if at all possible.	*22500 m^3*

	Actual for 2003	*Target for 2004*	Actual for 2004	Remarks	*Target for 2005*
Lapping Sludge Generated	730 kg	*730 kg*	877 kg	The company did not achieve its target. The figures show a 20% increase over the year. However, it is felt that this increase is consistant with the increase in production (8.9%) in the Bellows Welding Department. The target for 2005 has been set at a 7% increase over 2004 and allowing an additional 62 kg for a major clean out and servicing of the settlement tanks.	*1000 kg*
Acid Purchased	45 L	*45 L*	127 L	**Amendment to last year's reported acid purchase figures.** Due to the introduction of a smaller size drum, our supplier only supplied 25 litres of Nitric acid and not 45 litres as ordered in October 2003. This means that the **actual reduction achieved for 2003 was 82% and not 68%** as reported. The company was forced to order 25 litres of Nitric acid in May 2004 and a further 25 litres in July 2004. The company also ordered 52 litres of Hydrofluoric acid in May 2004 (first purchase since September 2002). Total acid purchased for 2004, therefore, amounted to 102 litres which represents a 245% increase over 2003. **Based on this the company failed to achieve its target.** Note that a considerable amount of this acid is still in stock. A more meaningful reporting criteria is to use actual acid usage which has risen by 22% from a total of 62 litres in 2003 to 79 litres in 2004. The company is satisfied that this is proportional to productivity. It is proposed to discontinue reporting on acid purchases as this does not reflect the actual usage. A new monitoring programme is currently being implemented to facilitate more accurate reporting of usage and trend.	*50 L*
Acetone Purchased	615 L	*615 L*	615 L	The company achieved its target of maintaining acetone purchased at the 2003 level. Due to the failure of an ultrasonic cleaning process, it has been necessary to increase acetone consumption on a temporary basis over the first three months of 2005. Consequently the higher target of 1025 Litres has been set for the year.	*1025 L*
Metal Scrap Generated	39895 kg	*37880 kg*	40852 kg	This increase of 2.4% means that the company failed to achieve its target in the amount of metal scrap generated. However, the company is satisfied that it is in fact generating less metal scrap when measured in the context of the overall 17.1% increase It is hoped that production levels will continue to rise with a corresponding increase in metal scrap. Consequently the target for 2005 has been set at 15% above the 2004 figure.	*47000 kg*

	Actual for 2003	*Target for 2004*	Actual for 2004	Remarks	*Target for 2005*
Coolant Purchased	3000L	*3000 L*	4000 L	The company achieved failed to achieve it's target to maintain the amount of coolant purchased at 3000 L. However, the 33% increase relates to the timing of purchases in 1000 Litre IBCs (Intermediate Bulk Containers). Actual usage figures have remained more constant showing only an 8% increase which is directly proportional to increased production levels. Timing of purchases will again require 4 IBCs to be purchased in 2005 and our target has been set on this basis.	*4000 L*
Rust Inhibitor Purchased	2255 L	*2000 L*	2665L	This represents an increase of 18.2% over the previous year. The commencement of an additional shift, combined with the resulting 34% increase in productivity, has necessitated more frequent flushing of coolant tanks. The replenishment of this coolant (mixture of water and rust inhibitor) is the motivating factor for the company's failure to achieve its original target. It is anticipated that this increase will continue through 2005 and the target for purchases of rust inhibitor has been raised accordingly.	*3075 L*

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5.0. Other Environmental Targets

The company also benefited a number of other environmental initiatives, not previously documented, during the course of 2004 as detailed below:

- **Landfill Waste** – In October 2003 the company implemented a new waste management programme to reduce the amount of waste being sent to landfill.

  Up to this point it was difficult to accurately measure the amount of waste as the volume was calculated on the basis of a weekly collection of a FEL (Front End Loading) Medium Skip, which had a capacity of 10.7 M^3 (with an estimated weight of 2.25 Tonnes).

  Under the new programme, the content of this skip was divided and categorised as either “dry recyclable” or “landfill” waste.

  An 1100 Litre wheelie bin (1.848 tonnes) was designated to contain the landfill waste, which comprised principally floor sweepings and food waste.

  The FEL Skip was then used exclusively for the “dry recyclable “ waste (paper wipes, timber, office paper, newspaper and magazines, cardboard, plastic wrapping, plastics, glass, etc.). Although these items are segregated within the factory prior to placement in the skip, they are further segregated by our licensed contractor at his facility.

  As a result of this programme the amount of waste sent to landfill was reduced from 92 tonnes (estimated) for 2003 to 26 tonnes for 2004.

- **Flat-screen VDUs** - Following a trial in late 2003 it was decided to proceed with a phased introduction of flat-screen VDUs in preference to renewal of CRTs. This is the beginning of a long-term project that will result in a reduction in both power consumption and electro-magnetic radiation.

- **Okamoto IGM 15NC Grinding Machine** - In March 2004 the company purchased this new I/D Grinding machine for use in the Sealide Grinding Department. This modern machine is more energy efficient than the older machine it replaced which was subsequently scrapped.

6.0. *Community involvement*

A reduction in business volume in the early months of 2004 forced the company to adopt an austerity mode which restricted traditional support of local charitable and other community organisations.

However, despite this, proceeds from recycling of drinks cans were donated to **St. Conaire's National School** in Shannon and printer inkjet cartridges continued to be recycled in aid of the **Temple Street Children's University Hospital** in Dublin.

Also, in a new venture, the company collected waste batteries and provided these to "kick start" a battery re-cycling project **at Barefield National School**, Barefield, Ennis, County Clare. This was to raise levels of environmental awareness among pupils. The school has since collected in excess of 3,000 batteries, which were returned to the Returnbatt Battery Recycling Company.

Additional efforts by employees raised funds for:

- **The C.A.R.I. (Children at Risk in Ireland) Foundation**

The CARI Foundation is a registered charity whose primary aim is to provide a professional, child centred therapy and counselling service to children, families, and groups who have been affected by child sexual abuse.

Alongside this we aim to provide the most up to date education and information service for children, adults and professionals on the dynamics of child sexual abuse, and, moreover, to raise public and political awareness of these issues.

Proceeds from an employee Easter Egg Raffle helped fund therapy services.

- **S.M.A. The SOCIETY OF AFRICAN MISSIONS**

This is an international community of Catholic missionaries who serve the people of Africa and people of African descent around the world. **SMA** stands for our official name: Society of African Missions. People often ask, then why SMA and not SAM? The initials refer to the name in Latin: **Societas Missionum ad Afros.**

SMA has witnessed the changing economic, political and social circumstances of the people they serve. They continue to respond with individual commitment and acquired expertise in the areas of Education, Health & Hygiene, Skills Development and Rural Infrastructure.

Employees support this charity through the proceeds of a collection box placed in the company's Eating Area.

- **Irish Cancer Society**

The company supports the Irish Cancer Society's Annual Daffodil Day Appeal through the sale, at Reception, of daffodil pins to employees.

- **The Irish Heart Foundation**

This organisation is supported through the sale, at Reception, of "Happy Heart" pins to employees.

- **Rehab Foundation**

This group is supported through various raffles facilitated in the company's Eating Area.

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7.0. Next Environmental Statement

The next full re-write of the EMAS Environmental Statement will be submitted for external verification by the 1st March, 2006.

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8.0. Verification

John Crane Ireland Ltd. has engaged, as accredited environmental verifier, the services of.....

SGS United Kingdom Ltd. (Accreditation Number: UK – V – 0007)

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9.0. Verifier's Declaration

Further to consideration of the documentation, data and information resulting from the Company's internal procedures examined during the verification process, it is evident that the environmental policy, program, management system review (or audit procedure) and the Environmental Statement meet the requirements of;

REGULATION (EC) No. 761/2001
OF THE EUROPEAN PARLIAMENT
AND OF THE COUNCIL
of 19 March 2001

allowing voluntary participation by organisations in a Community eco-management and audit scheme (EMAS).

Signed: AJ Thorpe

Amanda Thorpe

Date: *April 2005*

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