

Industry Joins Forces for Quake Rebuild

An interim agreement signed in early May between the construction industry and local and central government to rebuild Christchurch's earthquake-damaged infrastructure will cover the initial planning phase of the project. IPENZ Deputy President **Graham Darlow FIPENZ**, General Manager of Fletcher Construction's engineering division, signed the agreement along with the chief executives of Downer Construction, Fulton Hogan, City Care and McConnell Dowell.

The construction companies will work alongside the Christchurch City Council (CCC), the Christchurch Earthquake Recovery Authority and the NZ Transport Agency (NZTA) to rebuild ground level and underground infrastructure such as roads, water supply pipes and sewerage systems. In the initial phase of the project, the parties to the alliance have four months to identify costs, timelines and carry out logistics planning.

A temporary office to administer the project is planned to be set up in June while offices large enough to accommodate a sizeable team are built. Contractors working on the project, which is expected to cost between \$2 and \$3 billion over five years, have a massive task ahead of them, with damage sustained to about 300 kilometres (km) of sewerage pipes, 150km of water pipes and 75km of stormwater pipes, while 34km of roads need to be rebuilt and 895km are in need of repair.

Roading New Zealand (RNZ), which represents contracting companies involved in building transport infrastructure and has members involved in the rebuild, welcomes the formation of the alliance. "We look forward to



Earthquake Recovery Minister, the Hon. Gerry Brownlee, Christchurch Mayor Bob Parker, and Transport Minister, the Hon. Steven Joyce, inspect damaged infrastructure.

helping with the alliance to get Christchurch's infrastructure up and running again," **Chris Olsen FIPENZ**, the organisation's Chief Executive, says.

Mr Olsen says one of the advantages of an alliance over awarding individual contracts for a project of this size is there is greater momentum and resources to get work completed. NZTA applied an alliance-model in the construction of the Manukau Harbour Crossing, and when it was completed in August 2010 the project was one year ahead of schedule and under budget.

The alliance model was adopted for Christchurch due to the need to repair

and rebuild quickly, particularly for residents without functioning sanitary services, but there is a further benefit the work will bring: more jobs. Around 20,000 people are thought to be out of work in Christchurch, but these numbers are likely to be eased with the CCC estimating the rebuild to employ between 1,000 and 2,000 people.

RNZ has been in talks with the Ministry of Social Development and industry training organisation InfraTrain to modify pre-employment training agreements and channel the unemployed into work through the Ministry's "Straight 2 Work" programme. //



President's Message

Over my working life I have had much exposure to the challenges of managing workplace safety.

New Zealand's statistics in this area are not good. For example, in 2008 the New Zealand workplace fatality rate was 3.6 per 100,000 workers, whereas in Australia it was 2.8, and in some European countries it was just over one. Moreover, New Zealand is one of the few countries to have a deteriorating trend (that is, our rate is increasing). The National Occupational Health and Safety Advisory Council estimates the cost to New Zealand of workplace injuries and illnesses to be around \$5 billion per annum. This figure says nothing, of course, of the personal suffering and hardships that arise out of workplace injuries.

It is, therefore, appropriate the Minister of Labour has launched the Zero Harm Initiative, and many major New Zealand businesses are now participating in it. There is strong evidence to show that companies with exemplary safety performance also demonstrate superior productivity and profitability. This should not come as a surprise, as one talented Chief Executive said at a Zero Harm forum, "If you can't manage OHS, you can't manage".

New Zealand's poor performance begs the question, "How can this be so?" and you may also be questioning whether this is an engineering issue.

In my experience, the professional engineering community has not always been quick to realise it has a strong role to play in this field.

May I remind you of the IPENZ Code of Ethics:

“Part 1 – Values

Protection of Life and Safeguarding People

Members shall recognise the need to protect life and to safeguard people and in their engineering activities shall act to address this need.

Part 2 – Guidelines

- 1.1. Giving priority to the safety and wellbeing of the community and having regard to this principle in assessing obligations to clients, employers and colleagues.
- 1.2. Ensuring that reasonable steps are taken to minimise the risk of loss of life, injury or suffering which may result from your engineering activities, either directly or indirectly.
- 1.3. Drawing the attention of those affected to the level and significance of risk associated with the work.
- 1.4. Assessing and taking reasonable steps to minimise potential dangers involved in the construction, manufacture and use of outcomes of your engineering activities.

Part 3 – Minimum Standards of Acceptable Ethical Behaviour by Members

Take reasonable steps to safeguard health and safety

A Member must, in the course of his or her engineering activities, take reasonable steps to safeguard the health and safety of people.”

As you can see, the Code of Ethics is quite explicit on our responsibilities. It does not take the matter lightly.

“New Zealand's statistics in the area of workplace safety are not good.”

Engineers have opportunities to exercise influence on workplace safety through the design process and the leadership roles they often fulfil as workplace managers and supervisors. Good engineering design process can capture a whole of life consideration that is cognisant of, and mitigates, construction, commissioning, operating and maintenance hazards. This is a great way of designing superior safety outcomes for users, customers, the public and clients.

Company Boards are becoming more demanding of their organisations to demonstrate best practice in safety management, and if the New Zealand professional engineering community is not seen as offering best practice in this domain there is a risk there will be pressure to engage professional services from those who do.

So, I would like to finish by asking how you think you are performing in this area of practice. Do you have ideas on how the profession can lift its performance and make the workplace safer? //

New Software to Enhance Meetings

A new user-interface system designed to improve teleconferencing has been introduced at National Office. FaceMe is a New Zealand software product used for meetings of up to 20 people at a time hosted live at their computer terminal, and was chosen for its potential to enhance communications with Members. The desktop-based technology requires none of the downloads associated with similar software – a user simply emails guests an invitation, and provided they have a webcam and Flash installed on their browser they can log in at the designated time.

Uses identified by National Office for FaceMe include:

- Committee/Board meetings
- Competency assessment sessions
- Interactive sessions for Neighbourhood Engineers and Futureintech Ambassadors
- National Office announcements to Members
- Webinars (FaceMe is already being used for one of the Continuing Professional Development sessions).



FaceMe users can attend meetings from the comfort of their computer. Booking a meeting is as simple as emailing guests an invitation.

Greater still are the benefits from using FaceMe. Webcams allow attendees to see each other, a distinct advantage over teleconferencing, plus the software gives users the option to share documents and presentations.

A further advantage is the software's ability to replace physical meetings, allowing greater Member participation – particularly for those who live far away and would not otherwise be able

to attend – and removing the costs and downtime associated with travel. These are likely to be significant benefits for Members, with rising fuel prices and the potential impacts of the upcoming Rugby World Cup on the cost and availability of travel and accommodation this year.

FaceMe was released in 2010 and its clients include Powerco, Mainzeal, Baldwins and Fairfax Media. //

FELLOW AWARDED MAJOR BRITISH REFRIGERATION MEDAL



An IPENZ Fellow with extensive involvement in food refrigeration and energy efficiency has been awarded a prestigious accolade by the British Institute of Refrigeration. **Professor Donald Cleland FIPENZ** was presented the J&E Hall Gold Medal, which recognises significant contributions

to the advancement of refrigeration technology, at the Institute's annual dinner in London earlier this year.

In a career spanning 28 years, Professor Cleland's research into food product heat transfer, moisture sorption of packaging, air infiltration through doors and refrigerated display cabinet design has been widely used by industrial practitioners.

Professor Cleland heads the Institute of Technology and Engineering at Massey University. He is also a fellow of the American Society of Heating, Refrigeration and Air-Conditioning Engineers, the New Zealand Institute of Food Science and Technology, the Institute of Refrigeration, Heating and Air-Conditioning Engineers of New Zealand, and an honorary member of the Australian Institute of Refrigeration, Air-Conditioning and Heating.

Members may recognise the 2000 winner of the medal – Professor Cleland's brother Andrew, IPENZ Chief Executive and honorary Professor of Food Engineering at Massey. //

Managing Ethics and Discipline

Recently there have been a number of enquiries from Members wanting to know more about the new role of Manager of Investigation and Discipline. The position's primary purpose is to manage all activities related to processing complaints against Members and Chartered Professional Engineers, and in particular it deals with the complex regulatory processes involved in investigation and discipline. It also involves undertaking educational measures to improve Members' and registrants' ethical standards so they can improve their performance.

One reason for the establishment of this role is the recent increase in disciplinary cases, as indicated in Figure 1 (below).

Managing expectations is one of the challenges of this role, as the complainants and engineers engaged in a case must be kept involved in the process. It is important there is a clear understanding of why a complainant has contacted IPENZ and what his or her expectations are. Regular, informative progress updates should reduce the confusion and time spent reassuring complainants they are being taken seriously, and that all appropriate channels are being followed. Relevant aspects of the disciplinary manuals are supplied to all participants.



Charles Willmot FIPENZ steps into the newly established role of Manager of Investigations and Discipline.

The investigation phase needs developing so committees can become actively involved, and so that site visits and meetings with all parties can be undertaken. This way, all parties can be assured the committees fully appreciate the case being examined. The rules for CPEng and the IPENZ regulations will be reviewed to increase the natural justice provisions and to enhance the registration authority's capability to ensure a speedier resolution.

Ensuring training is provided to chairs and members of investigating

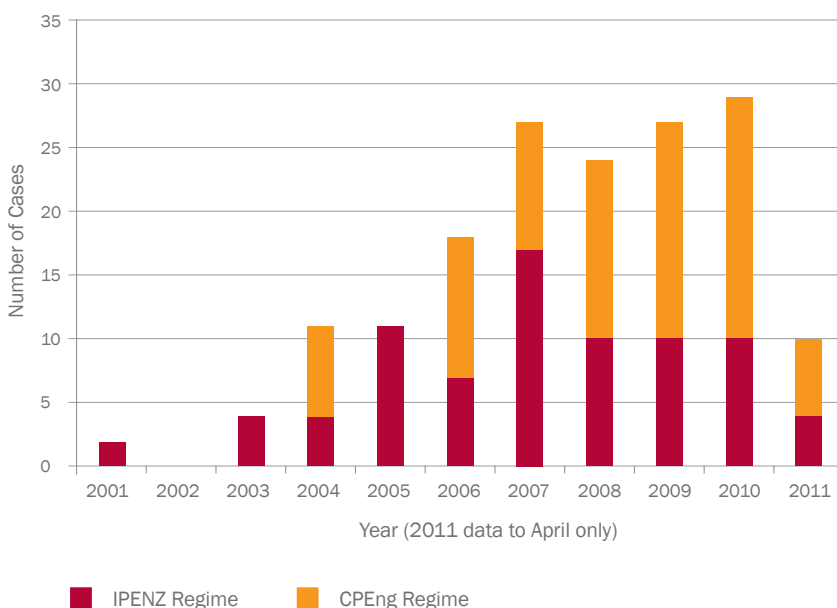
and disciplinary committees will include ensuring people understand the purpose of their role, delegated authority and powers. Similarly, a larger number of ethics advisors will receive training so they can provide practical guidance to the engineers who need to respond to complaints against them.

Providing up-to-date documentation (Practice Notes, manuals and rules for both the IPENZ and CPEng systems) will be available as soon as possible after changes have been made. Meaningful reports to the Engineering Practice Advisory Committee, the CPEng Council and feedback to Members will also be provided. The themes from the Practice Notes derived from issues raised by disciplinary cases is a component of this, as is ensuring engineering practice learning is an outcome of all cases.

Finally, while many elements of this role are well-established, others are still emerging. Currently, for example, there is a need to prepare for the uptake of cases from the NZ Transport Agency as IPENZ takes over the Agency's responsibilities for certifying heavy vehicles (any resultant changes will be publicised to Members as soon after they are decided as possible).

Ultimately, the role of Manager of Investigation and Discipline is critical to guaranteeing engineering's status as a self regulating profession. //

Figure 1: Disciplinary cases 2001-2011





Fellow Appointed Quake Boss

A Fellow of IPENZ is to head the Christchurch Earthquake Recovery Authority.

Roger Sutton FIPENZ was appointed Chief Executive of the Authority after 20 years with electricity network operator Orion Group. Mr Sutton held various engineering and management roles at Orion, and was most recently its Chief Executive.

In a statement to media, Orion Chairman **Craig Boyce** praised Mr Sutton's leadership following the September and February earthquakes in restoring vital power infrastructure and keeping residents informed.

Mr Sutton's replacement is also a Fellow of IPENZ. **Geoff Vazey FIPENZ** will take over as acting Chief Executive until a permanent appointment is made. Mr Vazey is currently a Director of Orion and was previously Chief Executive of Ports of Auckland. //

Engenerate Update

Mindstorming, CPEng evening and seismic activity.

On 28 April, the Wellington Engenerate crew, together with Student Engineers New Zealand, ran the Lego Mindstorm competition at Victoria University. Sixty people attended, ranging from senior IPENZ Members to students, lecturers, children and the general public.

Each of the eight teams had at least one IPENZ Member on board and had to build a robotic vehicle from the Lego Mindstorm kit within 90 minutes. The kit included sensors for touch, visible light, audible sound and ultrasonic distance measurement, two-gear motors to drive the wheels and steer, and a central processing brick to which a programme could be downloaded via a USB cable.

At the end of the time limit, the contestants downed tools and faced the final test – did the robot work, and whose was the fastest? The robots faced off in pairs, racing through the maze in straight knock-out rounds. The final bout saw **Cam Smart MIPENZ**, IPENZ Engineering Practice Manager, having to make a tough call on the overall winner. Congratulations to team



One of eight teams discussing strategies for the Lego Mindstorm competition held at Victoria University in April.

“CAHN” (**Hamish Brookie, Michael Brookie, Frank Geoghegan and Conor Geoghegan**).

In March, Engenerate Northland held a Chartered Professional Engineer (CPEng) information evening with presentations by **Felix and Marie-Katrin Richter MIPENZ**, who both obtained CPEng earlier this year. The pair fielded questions from attendees about the process for attaining CPEng. Waikato Engenerate held a similar evening in May.

Auckland Engenerate's March “Welcome Back” event featured a presentation by **Roger Brown FIPENZ**. Mr Brown, a seismic specialist, gave a first-hand account of his involvement in the Rapid Response teams in the aftermath of the Canterbury earthquakes.

Whatever your career stage, you can help add value to Engenerate, either by attending, speaking, hosting a site visit or getting involved in your local crew.

For more information contact engenerator@ipenz.org.nz //

Embracing Science Education the Key to Smart Economy



Futureintech Ambassadors Carrie Jollie and Kate Rennie demonstrate the concept of solids, liquids and gases to Year 3 and 4 students at Arthur Miller Primary School in Napier.

Futureintech supports the recommendations of a report by **Professor Sir Peter Gluckman**, the Prime Minister's Chief Science Advisor, which highlights the importance of science education for developing cutting-edge industries in New Zealand.

"Looking Ahead: Science Education for the Twenty-first Century" builds on research by the New Zealand Council for Educational Research, the Royal Society of New Zealand and the Ministry of Research, Science & Technology. In the report, Professor Gluckman projects previous findings to the long term, arguing that New Zealand needs to move quickly towards becoming a more "innovative and smart nation".

A new approach to science teaching and learning at all year levels is a key part of that process. "There is an international consensus that a strong science education system in the school years is a necessary prerequisite to having an economy based on knowledge and innovation," the report states.

With all that in mind, the report makes a number of broad recommendations on how science education can be adjusted to encourage the development of scientific literacy and a knowledge-based economy. "New Zealand must embrace science and technology and innovative thinking as a core strategy for its way ahead," it says.

In particular, the recommendations around pre-professional education are an important part of training the next generation of engineers, technologists and scientists. Futureintech's strategy

for careers' promotion is based on a number of these ideas. The report stresses that teachers need to keep science education relevant to their students' lives by staying informed about modern science-related issues, such as sustainable energy production or earthquake engineering. "If teaching does not occur within the realm of relevance," the report states, "then the pupil cannot be engaged and encouraged by it. Opportunity for significant ongoing professional development in science as well as in education is essential."

Professor Gluckman also urges that we help schools interact directly with scientists and embrace new ways of sharing information. "Given the rapid developments in broadband, it seems that it is most likely that in a decade's time science education of a pre-professional nature will be a new form of partnership between schools and the science community," he says.

Futureintech supports this interaction by arranging school visits from its Ambassadors in technology, engineering and science. By working with teachers and students, and explaining how they use science concepts in their jobs, these professionals help provide the relevance, practical experience, hands-on demonstrations and expertise that keep students engaged in science learning.

For the latest updates on how Futureintech is supporting and promoting science education around the country, as well as profiles of its Ambassadors, visit www.futureintech.org.nz //

Professional Development Events

WEBINAR SERIES (TUESDAYS)

- **21 June: 11:00am–12:00pm**
A one-hour real time webinar on:
Making Meetings Work
- **5 July: 11:00am–12:00pm**
A one-hour real time webinar on:
Negotiation Skills
- **26 July: 11:00am–12:00pm**
A one-hour real time webinar on:
Preparing for a Presentation
- **2 August: 11:00am–12:00pm**
A one-hour real time webinar on:
Strategic Tools
- **16 August: 11:00am–12:00pm**
A one-hour real time webinar on:
Dealing with Difficult People
- **30 August: 11:00am–12:00pm**
A one-hour real time webinar on:
Having the Courageous Conversation

Find out more on the webinar topics at www.ipenz.org.nz

JULY

Earthquake Engineering

An introduction to the basics of earthquake engineering where participants will gain an understanding of the principles of earthquake engineering, including topics such as:

- The definition of “response” and “design spectra”
- Seismic design approaches for buildings with Flexible Floor Diaphragms consistent with NZS1170.5

- Seismic design concepts for buildings (including houses) in areas susceptible to liquefaction.

This is a useful refresher for those with experience and an essential course for professional engineers new to earthquake engineering.

AUGUST

Wind Loading of Structures using AS/NZS1170.2

An introduction to the extreme wind climate of New Zealand, and the main features of the Australia/New Zealand Standard on wind actions.

Participants will gain hands-on experience in applying AS/NZS1170.2 correctly for wind sensitive structures and examples from “A Guide to AS/NZS1170.2” will be worked through. A great interactive course for Structural Engineers.

SEPTEMBER

Bridge Design

This course provides a broad overview of all aspects of bridge design, particularly the application of seismic design principles relevant to bridges. It is structured to reflect the requirements of the NZ Transport Agency (NZTA) Bridge Manual.

The course will be useful for intermediate structural engineers interested in bridge design, experienced bridge designers wanting to update their knowledge of seismic design in line with the proposed NZTA Bridge Manual amendment, as well as graduates and engineers from overseas who wish to become familiar with New Zealand bridge design standards.

For further information on dates, locations and how to register, go to the Engineering Calendar at www.ipenz.org.nz or contact cpd@ipenz.org.nz //

Membership Update

The following is a list of additions and changes to Membership classes for the period 9 September 2010 to 8 April 2011

Elected to Technical Member:

PF Asante, MA Beuth, BA Coyle, AP Harrop, DH Hautler, SC Jones, SR Penny, A Rammo, AJ Reid, LA Viljoen, AJ Williams.

Elected to Associate Member:

KZ Bracey, JKC Burns, AJ Edwards, TP Jacobson, PF Kickhefer, T Nand, AW Price, PE Southern, SM Todd.

Elected to Companion Member:

ABL Croker, SP Evans.

Elected to Affiliate Member:

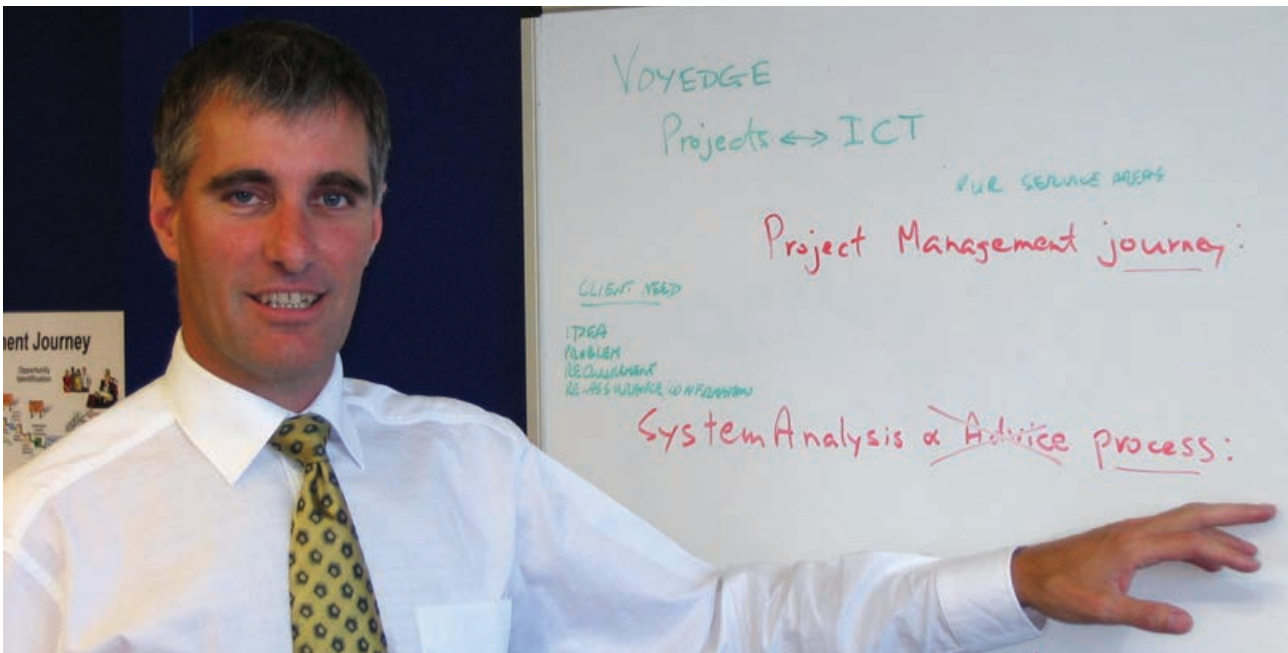
FJ Ansell, J Bennett, KJ Collie, N Colling, RS Eaton, BJ Harris,

CB Hechei, M Joyce, K Jupp, JW Martin, DR Openshaw, T Parker, J Parkinson, U Salayev, J Shen, SR Soysa, E Taffs, S Wilder, H Yule.

IPENZ regrets to announce the passing of:

NB Beach DistFIPENZ, BD Cashin FIPENZ, ER Coats MIPENZ, JB Coleman MIPENZ, RD Evison FIPENZ, KG Hyland FIPENZ, RW Irwin FIPENZ, GWN Johansen FIPENZ, WK Kiddle MIPENZ, JW Lello MIPENZ, KJ Orams MIPENZ, EM Parnham FIPENZ, JD Phare MIPENZ, SC Ryan MIPENZ, VJM Smith MIPENZ, MJ Timmins FIPENZ, CC van Delden MIPENZ, PP Wang MIPENZ, WI Wood FIPENZ. //

Jeffrey Coleman 1962–2011



It is with sadness that IPENZ reports the passing of **Jeffrey Coleman MIPENZ**, who died on 10 March 2011.

Jeffrey was a lover of technology, and this, in combination with his capacity for “getting stuck in” across a broad spectrum of interests, saw him make a great deal of achievements in both his professional and personal lives.

After working as an engineer for eight years, which included stints with New Zealand Railways, Cray Communications, Northern Telecom and Peat Marwick (the latter two based in the United Kingdom), Jeffrey moved into information technology in the early 1990s. At around the same time, Jeffrey settled in Nelson with his wife and they had three children.

As an Information and Communications Technology Project Manager, Jeffrey built up a wide network of clients, and was involved in at least 100 projects in both Nelson and nationwide. It says

something of Jeffrey’s nature that clients often became friends.

A professional interest in managing projects saw Jeffrey establish the Nelson group of the Project Management Institute of New Zealand (PMINZ), a model which was used to set up several other groups around the country. In Nelson he served as the group coordinator for seven years while also sitting on the South Island branch committee and helping organise the PMINZ’s national conference in 2000. In 2004 Jeffrey became a Fellow, the Institute’s highest accolade.

Outside his professional work, Jeffrey volunteered his services to the Nelson Marlborough Institute of Technology, serving on its information technology advisory board, the Suter Gallery and Matai School. He was also a lover of nature and wildlife, and became passionate about the Brook Waimarama Sanctuary (a recently established pest-free zone on the outskirts of

Nelson). Even when he began to lose his mobility due to the onset of motor neuron disease, he liked to go to the sanctuary and lend a hand. The sanctuary was, therefore, a very fitting location for a celebration service held for Jeffrey in March.

Signs of the disease began to appear in 2006, affecting Jeffrey’s mobility and speech. Despite no longer working as an engineer, he remained a committed Member of IPENZ. In 2010 the IPENZ Foundation made two grants available for Jeffrey to procure assistive technology that provided him with the ability to communicate via his PC, even after he was no longer able to talk. This technology was virtually Jeffrey’s only method of communication, allowing him to type emails, text instructions and requests, and talk by typing or selecting words from a list.

IPENZ expresses its sympathy to Jeffrey’s wife Sandy and their children Oliver, Hugo and Elsie. //



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