

## IGI Newsletter

The IGI newsletter is published by the Institute of Geologists of Ireland (IGI).

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## Event guide:

### May 2002

- Wed 1** **IGI AGM**  
Geology Department, U.C.D  
7pm
- Wed 8** **IGA**  
Lecture by Paul Mohr: The Last Gasp of the Galway Granite  
Geology Department, T.C.D.  
7.30 for 8.00pm
- Fri-Sun 10-12** **IAEG**  
Weekend course: Basement Controls on Carbonate-hosted Zn-Pb Mineralization in Ireland.  
Details: Gerry Stanley, GSI, e-mail: [GerryStanley@gsi.ie](mailto:GerryStanley@gsi.ie)  
Hotel Westport, Westport, Co. Mayo
- Thu 16** **KTC / WYG**  
One day course in Groundwater and Contaminated Land  
Rochestown Park Hotel, Cork  
9 am  
e-mail: [info@ktcullen.ie](mailto:info@ktcullen.ie)
- Wed 22** **GAI & Geotechnical Society of Ireland & PESGB - Irish Branch**  
One-day seminar  
"Marine Geophysical Investigations in Ireland Today"  
IEI Lecture Theatre, 22 Clyde Road, D.4  
9:15am  
(further details to be announced mid March)
- Fri 24 - Sun 26** **MHTI**  
Field visit to Glandore Mine and other sites in West Carbury  
Contact: Matthew Parkes at [matthewparkes@gsi.ie](mailto:matthewparkes@gsi.ie)
- Wed 29** **CGA**  
AGM and Members' Night  
Nevill Lab, UCC

### June 2002

- Thu 27** **KTC / WYG**  
One day course in Waste Management and Recycling  
Sheldon Park Hotel, Dublin  
9 am  
e-mail: [info@ktcullen.ie](mailto:info@ktcullen.ie)
- Fri 28** **KTC / WYG**  
One day course in Groundwater and contaminated land  
Sheldon Park Hotel, Dublin  
9 am  
e-mail: [info@ktcullen.ie](mailto:info@ktcullen.ie)

Updated listing on IGI website - [www.igi.ie](http://www.igi.ie)



# Newsletter

SUMMER 2002 ISSUE NO. 1

A Publication for the IGI

[www.igi.ie](http://www.igi.ie)

## A Message from the President

When the IGI was formally established in 1999 its mission was defined as "to promote and advance the science of geology and its professional application in all disciplines, especially the geosciences, and to facilitate the exchange of information and ideas in relation thereto."

To fulfil the first part of that Mission there has been a major drive to develop and promote best practice guidelines. To-date, guidelines on Resource – Reserve Reporting and Continuing Professional Development have been adopted, a consultation draft on the geological content of Environmental Impact Studies is under review by the membership, and draft proposals on a guide for drilling are at an advanced stage of preparation. These initiatives are in-line with international developments and have placed the IGI in a position to negotiate reciprocal links with kindred professional associations in other countries. For example, a co-operation agreement was signed this month with the Canadian Council of Professional Geoscientists with the objective of a mutual recognition of our professional designations. This agreement, coupled with those already in place with the AIPG, EFG and GSL, is giving the PGeo title ever greater value as an international technical passport. This is particularly important, especially for those of us active in the minerals industries who, because of the severe down-turn in the national exploration and mining industry, increasingly look to employment opportunities overseas. Equally, in other sectors, there is growing demand that technical reports submitted to government and its agencies, and to financial institutions must be signed off by a "qualified person". In the geological sector the PGeo title provides evidence of that competency.

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## The EPA confirms its support for the 'Qualified Person' concept.

In reply to representation from the IGI, the Environmental Protection Agency notes that it "will be requesting relevant staff to ensure, in-so-far as is possible, that any professional reports or services contracted or required by the Agency, ought to be signed by professionally certified individuals who are experienced in the relevant field".

The Agency recognises the important role professional associations, such as the IGI, play in regulating professional

practice, training, development, certification and informing members, and supports the need for professional standards in all matters associated with protection of the environment. The IGI considers that the EPA, as the principal front-line protector of the environmental interest of Irish society, has and is setting the high standards required to achieve that objective. We believe that the practice requiring reports to be signed by "qualified persons" will greatly enhance those standards as they apply to geological reports submitted to the Agency. ■

*EurGeol John A Clifford PGeo*

*IGI President*

## Ireland's Seabed Survey

Revealing the Secrets of Ireland's Seabed!

One of the most exciting journeys in Irish marine exploration is now well underway - the survey of the Irish seabed, an area that is ten times the size of Ireland's land area. At a cost of €27 million and with a planned seven-year duration this is one of the largest seabed mapping projects undertaken anywhere in the world and will place Ireland firmly to the forefront of world marine expertise. The survey is being managed by the Geological Survey of Ireland (G.S.I.).



*Primary survey vessel*

### Background

The origins of the seabed survey go back to the 1970's. Then G.S.I. employees used to dive from a small outboard motor taking samples close to shore, and innovatively used to employ sound sonar testing techniques by hanging over the side of the boat with a microphone! Now, the survey vessels and the range of technology employed in the current

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survey, are state-of-the-art, being the most sophisticated of their kind available today. How times have changed!

In authorising this survey in 1999 the government recognised that Ireland must maximise the commercial opportunities presented by its marine resources and plan measures to protect the marine environment in the most effective manner possible. The government was also conscious that a survey of this size would represent an opportunity to build up national marine expertise and to spread this expertise across government agencies, third level institutions and a strengthened private sector. Clearly, a seabed survey would complement the national strategy for marine research, technology, development and innovation as developed by the Marine Institute (M.I.).

### Organisation and partnership

The seabed survey as a major national initiative, involves many organisations and interests, and G.S.I. has attempted to include as many of these as possible in both the planning and ongoing acquisition phases. Government departments and agencies as well as third level institutes are involved in the Steering Group and Technical Advisory Committee.

The M.I. is managing a series of ancillary projects on board the survey vessels in topics such as oceanography, marine archaeology, fauna, whales and birds. They will also be involved in data acquisition in shallower waters whilst the surveying contract for deeper waters was awarded to GOTECH, an Irish company successful in an internationally competitive field.

Consultancy services are provided by the renowned international consultants, the Canadian Centre for Marine Communications, together with the Irish firm C.S.A. Much consideration has been placed on IT requirements since the survey is one which will originate vast amounts of data which will require storage, verification, technical analysis and manipulation into customer-friendly usage formats.

### The Survey

Several vessels are involved in carrying out the seabed survey - as many as four may be out at any one time this year. These vessels cruise back and forth measuring the characteristics of the seabed and its underlying rocks. The main technique used is multibeam echosounding, a variety of the technique used by fisherman to explore for fish. Magnetic, gravity and oceanographic data are also being acquired. A number of the more interesting areas will be investigated in follow-up studies including the collection of seabed samples.



Sonar testing techniques

### Survey benefits and customers

Information will be gathered as to the composition of rocks forming the seabed as well as the structure of the earth's crust below. Companies involved in exploration seek information on the seabed environment in order to identify rock sequences that may contain hydrocarbon resources. Fish habitats are often controlled by the nature of the seabed, and fishery interests seek information which makes fishing more economical while minimising the environmental impacts of trawling. In terms of sand and gravel resources, survey results will outline their distribution in reliable detail. Survey results will also be useful to those with interests in offshore aquaculture, shipping, coastal zone management, deep sea cold water corals, heritage (including shipwreck identification), renewable energy developments, waste management and identifying natural hazards.

### Products

Outputs from the survey include a series of topographic and geological maps of the seabed. These provide an accurate basis for maps customised to the needs of policy-makers, fishermen, engineers, biologists, oceanographers and geologists. The maps assist in studying seabed resources, natural hazards, preferred environments for living resources, and the present and future environment of the Irish seabed. Initial products are available in both paper and digital format and in as flexible a manner as possible to various customer groups.

### Ancillary projects

An important part of the seabed survey is the building up of

speakers from both home and abroad. Emphasis was placed on the Water Framework Directive, Nitrate Vulnerable Zone issues, the Drinking Water Directive, microbial quality of groundwater and the latest on nitrate and iron treatment. Groundwater sampling and analysis and new approaches to groundwater remediation including permeable reactive barriers were also discussed. Case studies were presented by experts using data from some of the major Irish and UK hydrogeological and infrastructural projects. International groundwater microbial issues and natural attenuation were discussed by the two Keynote speakers who were invited from the USA and UK.

The seminar proved to be a great success with plenty of debate and discussion on some key groundwater quality issues as well as being an enjoyable social event. Record attendances of over 160 delegates were registered reflecting the importance and wide appeal of the subject matter. ■

Morgan Burke & Malcolm Doak PGeo  
IAH (Irish Group) Committee

## European Federation of Geologists

### News Points

The EFG's new office in Brussels at the Service Géologique de Belgique was opened by Niall Andrews MEP in December 2001. The newly appointed Brussels Agency Chief Dra. Isabel Fernandez Fuentes is based here and is developing EU / EC contacts. Since Detlev Doherr, Germany resigned in early 2002 as the EU Delegate, John Clifford, Ireland has agreed to be an EU Advisor to the Board working with Dra. Fernandez.

The three National Association of Ireland, Spain and the UK have been appointed as Licensed Bodies to award the professional title of European Geologist. This has streamlined the system, whilst upholding the high professional standards.

Dr. Maureen McCorry has been appointed the new editor of the European Geologist magazine. Maureen is a Queen's University Belfast graduate, married to Prof. David Harper and is now based in Copenhagen.

In Spain the EurGeol title is now enshrined in law. Holders of the EurGeol title will have the same rights and privileges to register with ICOG as a Spanish-qualified geologist. The Canadian Securities Administrators have announced that they will accept somebody with the EurGeol title as a Competent Person for the purpose of signing off reports submitted to the Canadian stock exchanges. Similarly the Irish Government's Exploration and Mining Division will also accept the holder of the EurGeol title as a Competent Person.

EurGeol. Gareth LI. Jones PGeo

## New Books

Brady, N.C. and Weil, R.R. 2002 *The Nature and Properties of Soils*, 13th Edition. Prentice Hall, New Jersey.

Chapelle, F.H., 2001 *Ground-Water Microbiology and Geochemistry*, 2nd Edition. John Wiley & Sons, New York.

Croner C.C.H. Group Ltd, 2001 *Croner's A-Z Essentials: Environmental Management*. Surrey.

Holden, N.M. (Editor), 2001 *Agro-Meteorological Modelling - Principles, Data, and Applications (With examples drawn from Ireland)*. Published by AGMET, Joint Working Group on Applied Agricultural Meteorology. Dublin, Ireland.

Holland, C.H. (Editor), 2001 *The Geology of Ireland*. Dunedin Academic Press. ISBN 1-903765-04-8.

Williams, I., 2001 *Environmental Chemistry, A Modular Approach*. John Wiley & Sons, Chichester.

## Conodont Worker Honoured

Earlier this year Trinity graduate, Prof. Derek Briggs, University of Bristol was awarded the prestigious RDS / Irish Times Boyle Medal for Scientific Excellence, for his work in fossil research including the description of the first conodont animal.

## Membership

The IGI welcomes new members. For further information, please contact the secretary, IGI, Dept. of Geology, UCD, Belfield, Dublin 4; email: [info@igi.ie](mailto:info@igi.ie)

## Visit our Website

[www.igi.ie](http://www.igi.ie)

## Articles Welcome

The IGI welcomes articles and photographs relevant to geology in Ireland. We also welcome your letters, comments and suggestions. Please write to the editor.

I think we should look at this question seriously. It is no big deal to download the materials from the web and read it. Then take out the diary for 2001 and review what improved your professional life for the period - use the notes and the spreadsheets to help you. Then record it. Have a look at the idea of the Cycle. Where are you going with your career? Are you meeting all the demands of your workplace or your clients? Are you always on top of your job?

So why is it so difficult to get this done? The answer is simple. We do not really believe that it is important, despite agreeing wholeheartedly to the CPD concept. Therefore put away the excuses and get cracking. You will find that the benefit is tangible immediately. ■

*EurGeol Christian Schaffalitzky PGeo  
IGI Board Member*

## Update on Working Groups

### Draft Drilling Guidelines

A Working Group of the IGI was set up to draft Drilling Guidelines to provide for consistent standards in drilling and completion of boreholes and investigation holes and to provide for protection of the environment from intrusive investigations.

The working group comprises representatives from the Mineral Exploration, Geotechnical and Hydrogeological fields. A hydrogeological sub-group was also set up to draft guidelines on water well drilling.

In 2002 the working group intends to produce provisional guidelines for review by the Board of the IGI and by independent experts. Following this review the guidelines will be distributed to the IGI membership as a Consultative Draft document, also inviting comment from all interested parties including relevant agencies, professional associations and industry. It is envisaged that the consultation process will culminate with a workshop meeting of all interested parties. ■

*EurGeol Becci Cantrell PGeo  
IGI Board Member*

### IGI to produce EIS Guidelines

The IGI considers that, in many cases, Environmental Impact Statements (EISs) do not deal satisfactorily with geological aspects of developments, and commonly do not involve a professional geologist. Under the IGI's mission to promote and advance the science of geology and its professional application, EISs were targeted for improvement and a Working Group was set up to produce guidelines to assist those people who are concerned with planning and development in how geological issues should be addressed.

Following consideration of requested submissions from a wide variety of geologists and other professionals with experience in EISs, the Working Group has now produced draft guidelines for the consideration of all IGI members. The

Guidelines can be downloaded from the IGI web page at <http://www.igi.ie/pub-codes.shtml>

Although a date has yet to be decided, it is planned to hold a workshop to discuss these guidelines, and adjust them further, before they are distributed to relevant outside bodies. ■

*Andy Bowden PGeo  
IGI Board Member*

For further information on the various working groups progress, check out our web page [www.igi.ie](http://www.igi.ie)

## Course and Seminar Reviews

### IAEG course in Sequence Stratigraphy

At the end of February the IAEG held a one day course, at the GSI, in Sequence Stratigraphy, which was run by Dr. John Howell from the University of Liverpool. This IGI-certified course was compressed from three days into one and was truly intensive, with the only short breaks being for problem working. A massive 180 page course notes handout is profusely illustrated with colour diagrams of the concepts involved.

Over fifty people attended the course which was an excellent illustration of the advance in professional development brought about by collaboration between the IGI and one of its sponsoring bodies. It was of benefit both to the many students present and those advanced practising geologists who had only recently heard of the concept and were able to upgrade their professional education and contribute towards their CPD.

The course covered the basic concepts of accommodation space, sediment supply and sea-level change. Para sequence sets, stacking, lowstands and highstands soon became common jargon for the participants, who then developed their knowledge to fit varying situations such as ramps, high subsidence areas, tectonically active basins, etc. etc. ■

Congratulations to all concerned.

*EurGeol Gareth L.I. Jones PGeo  
Conodate*

### IAH (Irish Group) Seminar – “Groundwater Quality: Current Issues and Concerns”

The 22nd Annual IAH (Irish Group) Groundwater Seminar was held at the Tullamore Court Hotel on the 16th and 17th April. The event is the highlight of the Irish hydrogeological calendar and the objective of this year's seminar was to provide a forum for the presentation and discussion of papers relevant to the topic of 'Groundwater Quality: Current Issues and Concerns'.

The two-day seminar was divided into five sessions with

a widely spread marine expertise. To this end the M.I. manages an Ancillary Project programme. Ireland's national weather service, Met Eireann, has been taking daily weather reports on specially designed reporting formats from survey crews. Bord Iascaigh Mhara, the Irish Fisheries Board is also taking specially formatted daily reports from our vessels. Crews are reporting sightings of cetaceans to the Irish Whale and Dolphin Group, and bird and cetacean spotters from the Coastal Resources Centre at Cork University have also been on board the survey vessels. In 2000 a Strategic Research Programme was implemented aboard the Irish national research vessel, the Celtic Voyager. The aim of this programme was to build geological expertise in the third level sector, and projects based in Dublin, Cork and Galway institutes took part in it.

### Current status

The primary focus of the survey so far has been on Zone 3, the more distant and deeper part of the seabed from depths of 200-4500m. Now, after two seasons of data acquisition almost 400,000 sq kms of Ireland's waters have been surveyed and the data has been analysed in a preliminary manner to ensure accuracy of record and quality. Following on from this preliminary quality control process the formal appraisal and interpretation of the data has commenced in earnest. This process is a lengthy one, but will ultimately lead to the provision of high quality general and customer-specific maps and products.

As we now enter the third season of data acquisition let's hope that there are placid waters ahead! ■

*Enda Gallagher  
GSI*

### A Message from the President

*continued from page 1*

Because of the close links with our Sponsoring Bodies, and the imperative not to compete with their activities, the Institute has not to-date developed any regular meeting programme which might generally serve as a communication mechanism between the membership. Instead, we have relied on through regular e-mail reports and a website as the primary means of communication. Even though this system is working, we believe that communication internally, and to the general public, would be further enhanced through a regular newsletter. It is essential, and urgent, that we get the message across of the relevance of geology to serious issues relating to the environment, infrastructure development, and to many other concerns of public interest. For example, in recent months there has been much discussion on waste management issues. This newsletter adds to that debate. In the future other matters of topical concern will be addressed. We invite all members to submit suitable short technical articles for publication. ■

*EurGeol John A Clifford PGeo  
IGI President*

## Waste Management in Ireland

**Professional geologists are working in many aspects of environmental planning and management. In this issue Conor Walsh of White Young Green Ltd and Eugene Daly of E.Daly & Associates present their personal views on current waste management practices in Ireland.**

## The Two Faces of Waste Management in Ireland

Waste management in Ireland is undoubtedly changing at a rapid pace. The rate of change has been determined by directives from Europe that include prescribed dates for achieving specific goals. However, the pace of change has created monsters and the industry now faces major challenges to deal with these problems. Depending on where you look, two faces of waste management are now evident.



*KTK Landfill, Kilcullen, Co. Kildare*

If you look at the 'happy face' you can see that the old poorly managed town dumps are being assigned to history. Modern, environmentally sound, state-of-the-art landfills such as Kill, KTK and Tralee are replacing the old disposal sites. Alternative waste treatment methods such as recycling and composting are on the increase. REPAK met their target of recycling 25% of packaging waste by 2001. Progress has been made in increasing 'bring' centres for recyclables from 400 in 1994 to 1,300 in 2001. Segregation of domestic waste at source has been introduced in many urban areas and this is continually expanding. The recent introduction of the plastic bag levy has had an immediate and dramatic effect. The regional waste management plans are now heading into the implementation stage, after their initial delays. We can now expect to see the construction of a coordinated network of recycling and composting facilities around the country as well as other initiatives and pilot projects aimed at diverting waste from landfill. Sounds good.

But this is only the start. By 2003, the Government expects that we will recycle 50% of construction and demolition (C&D) waste. By 2005, we are due to recover 50% of packaging waste. By 2013, we should be recycling 35% of municipal waste, biologically treating 300,000 tonnes of organic waste

per annum and recycling 85% of C&D waste. To assist in achieving these ambitious targets, the Government will provide € 825 million of capital investment on waste management in the National Development Plan for the period to 2006. The future looks bright.



Illegal Dumping

"So what about the 'sad face'?" I hear you ask. The major problem is the lack of current waste disposal capacity in Ireland. The symptoms of this problem include illegal landfilling and rapidly rising disposal costs. The latter is not necessarily a negative symptom, as increasing disposal costs improve the economic viability of alternative waste treatment options such as recycling. This will be reinforced on 1st June this year, with the introduction of the landfill levy, which will add €15 per tonne to the cost of landfilling waste.

Illegal landfilling on the other hand is of major concern. In recent years, most local authorities, in a bid to save void space for municipal waste at their landfills have introduced bans on specified wastes such as C&D, commercial and industrial wastes. While this has encouraged recycling it has also encouraged dumping of wastes at unlicensed and unregulated sites. C&D waste has been used to backfill quarries for many years in Ireland. The economic boom experienced in Ireland in the last 10 years has led to the production of unprecedented levels of C&D waste. Recent estimates suggest that 2.7 million tonnes per annum of this waste stream is currently produced. It is widely accepted that this figure is grossly underestimated and it is not unreasonable to suggest that there could be as much as two tonnes of C&D waste produced for every one tonne of municipal waste. When you consider that less than 40% of this material is recycled, it is clear that massive volumes are landfilled, both legally and illegally.

The vast majority of this landfilled C&D material is inert and many of these sites are unlikely to pose serious environmental risks. The more serious problem that has recently emerged is the alleged dumping of non-inert and in some cases hazardous materials in these non-licensed sites. The extent of this problem has yet to be identified and may never be found. The expression 'looking for a needle in a haystack' seems somewhat appropriate.

The way forward is complicated. The Local Authorities can provide permits for disposal of C&D waste in a controlled manner. However, this must not act as a disincentive to prevention and recycling of these waste materials. Similarly, the provision of new municipal waste disposal facilities and thermal treatment plants, while essential, must not compromise the development of more preferable waste treatment options. Finding the right balance is necessary and this is likely to be the first task of the Government's newly proposed National Waste Management Board. ■

Conor Walsh PGeo  
White Young Green(Ireland) Ltd.

## Waste Landfill Site Selection

The national attitude to waste management in the Republic of Ireland over the last twenty years has been characterised by a combination of inadequate planning, self-delusion and irresponsibility on the part of individuals, professionals, administrators and politicians. This unsatisfactory situation has developed partly because there has been a lack of debate on the cost to society and the environment of higher standards of living.

Geologists are most familiar with the final disposal side of waste management, i.e., landfills. Over the last 25 years they have examined and monitored existing sites, considered sites for expansion, looked at the potential of new sites for waste disposal and participated in the development of local authority waste management plans.

Landfill is generally perceived to be one of the least desirable disposal options. Many waste disposal sites operated in the Republic up to the late 1980s and early 1990s were under-resourced, inadequately designed and constructed and as a consequence their operation often bordered on the negligent. Many of the sites caused considerable nuisance to local inhabitants/their neighbours and were sometimes responsible for groundwater and surface water pollution. There are still a few sites in operation today that fall into the above category. It is therefore not surprising that the proposed developments of new landfill sites are fought vigorously by local residents groups and others.

Under the terms of the Waste Management Act of 1996 local authorities have been given the responsibility of managing waste generated within their functional areas. However, they often get little political support even from elected representatives who sit on County Councils. Many local authorities have had considerable difficulty in developing new sites and one or two have even given up the task.

There was inadequate consideration and development of alternative waste disposal options in the Republic until the last decade. In view of the continued expansion of the economy and general change in lifestyles it is likely that a significant proportion of the additional waste generated will have to go to landfill for the foreseeable future. This article

and handle the business requirements of exploration and mining permitting through the internet. Started in December 2001, it is intended to go 'live' before September 2002. The key elements of the Initiative are streamlining internal processes and automated regulatory procedures leading to quicker permitting, e-Enabled business, free web access to all the data being released under the other two Initiatives, and all geographically based data (licence areas, base maps, environmentally restricted areas, forestry coverage, basic geology, airborne and ground exploration maps etc) in GIS format. As such the Initiative is intended to place Ireland at the forefront internationally in terms of offering maximum ease of access to full information availability and business transactions. Watch our website at [www.emd.ie](http://www.emd.ie) for status updates, or attend one of our future demonstrations!

International interest in these Initiatives was tested at the Prospectors and Developers Association of Canada Trade Show, held in Toronto this March. EMD provided demonstrations as well as the free data on CDs, and we were pleasantly surprised by the high level of data demand and the strong interest in the perceived benefits of the MAPS Initiative. Four companies intend to investigate undertaking exploration in Ireland in the near future, and a number of others new to us are maintaining contact. ■

Dr. Piers Gardiner PGeo  
Dept. of Marine and Natural Resources

## CPD - Have You Prepared Your Plan?

Last year a CPD scheme was finalised and introduced to the IGI with the approval of almost all members. All of us were obliged to prepare a Personal Development Plan for the next three years and then submit an annual summary of how our plan was progressing. The first time that members would be required to respond to the IGI under the scheme was to return their 2001 summary in early 2002, with their membership fee. Anyone who has completed their summary form already will agree that allowing 2-3 hours is adequate to complete this task.

However from the current rate of returns from members of these forms, it is clear that the majority of members have had difficulty 'finding the time'. This is understandable but also unacceptable. Let us review again the logic behind CPD and indeed the IGI.

The IGI was set up to promote professional practise within the geosciences. The need for the Institute was clear to those working in newly developing sectors in Ireland, thanks to the 'Celtic Tiger'. Rapidly expanding infrastructural development, combined with increased demand for water and a need for environmental controls all led to new demands on the geological professions. The areas of hydrogeology, the environment, engineering geology and geotechnics have

seen a rapid expansion in recent years. All of these areas require formal, often international, standards which did not exist in the past. To provide strong leadership and self-regulation the IGI was established to raise or exceed the standards of work expected in professions with longer experience. If we did not do this, geoscientists would be considered to be inferior to others and would not be able to retain scientific, commercial and professional independence. As for CPD, this is a discipline introduced to make it easier for members to structure their career development in a practical way. It was not designed as a 'rubber stamp', a noble aspiration whereby an annual affirmation would suffice. A more rigorous scheme has been put in place which forces us to really review what we are doing at work. Nevertheless it is not difficult and does not take up a lot of time.

The IGI provides members with the materials needed to organise their CPD, which can be downloaded from the Institute's web-site ([www.igi.ie](http://www.igi.ie)). This consists of a 'How to' handbook, a spreadsheet workbook (in Microsoft Excel) with a step-by-step guide for constructing a Personal Development Plan and recording CPD activities, as well as detailed guidelines designed to address all aspects of the CPD scheme. The idea of the spreadsheet system is to make the process user-friendly, while attempting to impose a certain discipline on the process of recording activities claimed for CPD. From experience, users report that the entire process, completed on an annual basis, can be done in 2-3 hours. However a bit more thought should be put into the Personal Development Plan, which is after all the most important part of the process.

The main problem with CPD is its introduction. No professional who has worked well in his or her job without formal CPD appreciates having to report to a third party. Many people have objected that CPD schemes are intrusive and take too much time to complete. Also they believe they do not need to prove to anyone that they are good at their job. This perception arises because it is based on a misunderstanding – CPD is not 'checking up' on the individual. It is providing a basis for career development that will benefit the individual throughout his or her working life. The 'checking' provides a formal motivation and attempts to set a standard of which the profession can be proud. Certainly CPD is a challenge to those of us who have not set out our career development path clearly in advance. However it is never too late to improve our vision of our jobs and CPD provides one way of achieving this, to the benefit of all.

There is another aspect to this area of professionalism which has emerged in public debate in the recent teachers' dispute. What makes us professional rather than 'merely' an employee? Without going into detail, I believe it can be summarised as treating our work as an important and integral part of our own personal life. It is obvious that the vast majority of the IGI membership agree with this observation. It can be seen most clearly in the IGI annual report, where very many members are involved in the organisation and management of the Institute on a voluntary basis. If we are tardy in returning those b\*\*\*\*\* summary forms, does this mean we are not professional?

Geological Society of London, Australian Institute of Mining and Metallurgy, American Institute of Professional Geologists and Canadian State bodies.

At present no register of approved QPs working in Ireland is being established. However all reports submitted after 1st January 2002 are required to include a standard form which provides the relevant qualifications (with dates) and signature of the author, or the suitable professionally qualified individual who is responsible for endorsing and signing off the work. The professional area of expertise is also required to show its relevance to the subject of the report.

The QP approach adopted in Ireland will, it is hoped, serve to further underline the high level of expertise and quality of work by professionals in the minerals industry. It also removes the need for professional licensing, and keeps bureaucracy to a minimum. There is however a clear onus on the professional association, such as the IGI, to operate responsibly as self-regulatory organisations. The 'regulators' have complete confidence that this will be the case. ■

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Dept. of Marine and Natural Resources

## New Initiatives to Promote Minerals Exploration

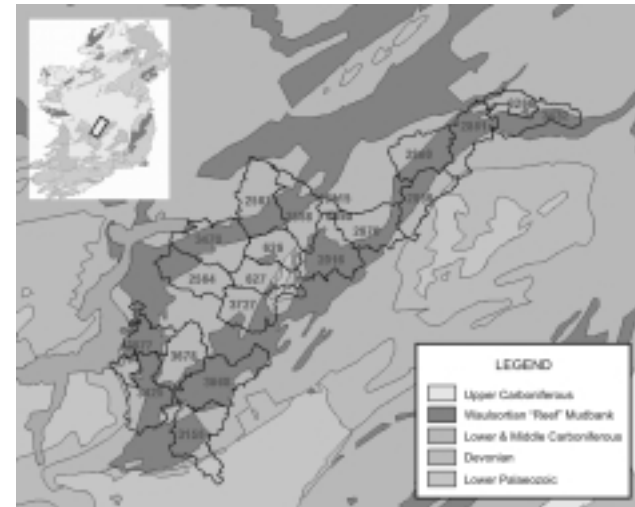


Current coverage and availability of low-level airborne geophysical surveys.

The Exploration and Mining Division (EMD) of the Department of the Marine and Natural Resources has embarked on three significant complementary new Initiatives since June 2001, to encourage exploration investment and stimulate interest.

The common theme is to provide, free of charge and in digital format, all non confidential data that is available through the Division.

- **Airborne Data Release Initiative 2001.** Since 1995 low level high resolution geophysical surveys have been flown over 57 areas by various companies under the EMD 'open skies' policy. Some 30% of the country, largely prospective Lower Carboniferous terrain, has been covered. All data is lodged with EMD, and once the 4 year confidentiality period has expired is being made progressively available to the public. The first survey was released in June 2001, and to date over 50% of the coverage has been made available free on CD. Each release includes digital databases, grids and maps. Additional maps generated by EMD are also included.



Map showing location of blocks of Prospecting Licences for which exploration data has been released to date under the Exploration Data Release Initiative 2002.

- **Exploration Data Release Initiative 2002.** Until now the only available company exploration data was from exploration ground that had been surrendered. Under this Initiative all data over six years old from currently held Prospecting Licence areas will also now be released, providing a wealth of previously unavailable information free of charge. The initial phase is focused on long held areas that comprise a third of the current acreage, with the first block released in February (see Figure) on free CD. All reports, drill logs and maps are in digital format. Data from areas surrendered since 1 January 2000 is also being made available digitally in a similar manner.

- **The MAPS Initiative.** The MAPS (Minerals Administration Programme Support) Initiative is an ambitious major project designed to provide industry globally with all the needed information and available background data to assess ground

examines briefly one aspect of waste management, i.e., new site selection, with a view to taking some of the heat out of the discussion and replacing it with light.

In the mid-1990s a national policy was developed to replace the many existing small landfill sites, often just dumps, with a much smaller number of large landfills. In large modern engineered landfills the necessarily expensive standards for design, construction, operation and monitoring are offset, at least in part, by the economies of scale associated with the large volumes of waste being disposed of in such structures.

The policy of constructing large regional landfills, the so-called "superdumps" (a most inappropriate term), has never been adequately explained nor has it achieved public acceptance. Now that national waste management policy is based on the need to drastically reduce the amount of waste going to landfill and also that the charges associated with waste disposal are more realistic, the time may indeed be opportune to reconsider the policy of replacing small landfills with a few very large landfills.

A system for site selection has evolved over the last decade which has been designed to identify suitable sites in an even-handed manner. However, the process is essentially inequitable in that it puts a local authority with effectively limitless resources in conflict with a small community with very limited and already heavily taxed resources.

The majority of the population, who live in urban centres, want their waste to be disposed of cheaply, very safely (environmentally) and as far away from themselves as possible.

This translates into wishful thinking on a national scale. Criteria that place landfills in locations where they will have limited impact on the environment are used in landfill site selection. However, they are often applied with little precision. One of the commandments of site selection is "thou shalt not site a landfill in any quarry". There is no scientific basis for this policy and it is contrary to practice in many countries in the European Union.

In the Republic we must have some of the most travelled waste in Europe. The euro cost of transporting the waste is often considered in site selection. However, the impact of the associated and unnecessary air pollution, damage to the road infrastructure and the health of local communities along the way are rarely considered.

The impact of landfills on humans is often given less attention in landfill site selection than the impact on the non-human aspects of the environment.

Although the process of site selection, adopted by local authorities, sets out with the best of intentions the results are invariably similar. The following characteristics are common to many of the sites chosen for investigation and subsequent development;

- the sites chosen will be close to the county boundary thereby limiting the political impact in the county disposing the waste,

- the sites will be on poor land, in under-resourced and unattractive areas (in the eyes of many urbanites) where the capacity of the local population to object is limited,

- as far away as possible from the principal sources of waste,

- often in upland areas where the roads are poor and where leachate production is greater than in the lowland areas, and

- in forested areas where access for site investigation is easier.

The essential effect of a landfill site selection process is often the bullying of a small rural community into accepting the waste produced by their urban cousins. This is a poor reflection on the main benefactors of the "Celtic Tiger".

Unless the process of waste management is injected with a dose of reality in the near future, effective solutions may indeed be a long way away. Some of the realities we need to embrace in landfill site selection include the following;

- most waste should be disposed of close to where it is generated,

- those who are most directly affected by the location of landfills should be compensated financially out of the charges for waste disposal,

- review the policy of creating a small number of very large landfills,

- a transparent and equitable system of site selection is required and one that the population can have confidence in,

- re-examine some of the site selection criteria and apply them with precision, and

- inform and educate the public and politicians on the realities of waste management and disposal. ■

Eugene Daly PGeo  
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### Views and Opinions Welcomed

The IGI welcomes comments on articles and views on issues relevant to geological practice. Please write to the editor.

### Recent Waste Legislation

S.I. 86 of 2002 Waste Management (Landfill Levy) Regulations, 2002.

S.I. 540 of 2001 Waste Management (Collection Permit) (Amendment) Regulations, 2001.

## Heads Up in the Mine & Quarry Industry

Following the mining accidents at Aznalcollar in Spain (1998) and Baia Mare (2000) in Rumania the, up to then, remarkably peaceful and relatively Directive free life of the mining & quarrying industry is about to change. And change significantly. Prior to that point the minerals extraction and processing industry was largely exempt from the following environmental and safety focused EU legal instruments: the IPPC Directive, the Waste Directive, and the Seveso Directive. These accidents caused the EU Commission to examine the extractive industry, and in particular it's environmental performance. Two Commission documents (known as communications) followed ('Promoting Sustainable Development in the EU non-energy extractive industry' [Com(2000)265] and 'Safe Operation of Mining Activities: A follow-up to recent Mining Accidents' [COM(2000)664]). The Commission also established a Task Force to carry out a detailed investigation of the Baia Mare incident. An Irish man, Mr Tom Garvey, headed up the international task force for this investigation. This report can be found at [http://europa.eu.int/comm/environment/enlarg/bmtf\\_report.pdf](http://europa.eu.int/comm/environment/enlarg/bmtf_report.pdf)



Mud Stacking at Aughinish Alumina

The Commission Communication on Safe Operation of Mining Activities made three recommendations:

- Amend Seveso II Directive (1996/82/EC) (accident prevention)

- Develop a mineral waste management initiative
- Develop a mineral waste Best Available Techniques (BAT) document

The commission recognised that the advancement of these initiatives requires an understanding of the minerals industry in Europe. To that end two further reports were prepared on behalf of the Commission. The first led by French consultants BRGM is a dreadful document, full of inaccuracy and lacking any credible operational understanding of the sector. I would not recommend you read it. The second is a report is by the UK based Symonds Group, and is a better, more informed document.

All of these reports and referenced documents can be accessed via the following EU web address: <http://europa.eu.int/comm/environment/waste/mining.htm>

### Amendment to Seveso II Directive (1996/82/EC)

This Directive deals with safety matters in relation to the risks of major accidents or hazards at industrial facilities. The amendment is quite tight and only subjects, to the terms of the directive, those operations involving mineral tailings facilities, and processing or mine storage facilities involving dangerous substances (e.g. Cyanide).

### Mineral Waste Directive Initiative

This 'initiative' takes the form of a proposed directive. The working title of the draft Directive is The Management of Waste Resulting from Prospecting, Extraction, Treatment and Storage of Minerals. The second draft of which can be found at the web location referenced above. There are big implications for the mining industry and also, significantly, for the quarry industry in this proposed Directive. The motivation for this special Directive arises from the current inappropriate and questionable regulatory role of the Landfill Directive (1999/31/EU) in relation to minerals wastes.

The definition of what constitutes a mineral is very large (similar to that defined in Irish planning law as well as oil & gas). The proposed directive will capture all wastes (including overburden and unusable rock) associated with mines and quarries. That said, many of the provisions (e.g. accident prevention plans) will only apply to the large sites.



TMF at Lisheen Mine (Dr. Ben Dhonau DMNR)

I will not go into too much detail on the implication of this draft directive in this bulletin. Those interested can follow up themselves. However, in brief summary the directive seeks to have all minerals waste facilities obtain a licence to store/dispose the waste; safety statements are also required in certain cases. The reference web site also permits one to read the comments of governments and stakeholders on the working drafts to date. Dr Dhonau of the Dept of Marine & Natural Resources and I are the principal officials involved on behalf of the State. Industry associations can participate via European affiliations (e.g. Euromines). Also, the European Federation of Geologists has been involved in commenting, though I am not sure what angle they are taking (industry, regulatory, neutral).

### BAT Document

As part of the Integrated Pollution Control Licensing Directive, the commission set up a technical office in Sevilla, Spain to draft Best Available Techniques Reference Documents (BREF) to be used by industry and regulators in an effort to harmonize the environmental operation and control of different industrial sectors across Europe. The technical department in Sevilla has been asked to draft (in consultation with governments, industry and NGO's) a special BAT document for mineral waste management. The EU web link cited above will permit one to enter the Sevilla web site and view progress on the mineral waste BAT document. Unlike the mineral waste directive initiative the scope of the mineral waste BAT document is somewhat narrower. Not all minerals are included, and so it will not have the same effect on national quarry operations as would the proposed directive. It will mainly apply to the likes of the Zinc mines, Premier Periclase, Mitsui Denman in Cork, Aughinish Alumina, Gypsum Industries, etc.

It is likely that the mineral waste BAT document when produced would be given legitimacy under the proposed mineral waste directive. I am the Irish representative on that group and I have been working in co-operation with DMNR and the mining/mineral waste industry in Ireland. It is likely that DMNR will be represented at future BAT discussion meetings.

This document is unlikely to be finalized until end 2003. A draft is expected in summer 2002.

If anyone wishes to be kept informed on developments in this area they should watch the EU and Sevilla web sites given earlier. I can also provide more detailed information to any anorak types out there. ■

EurGeol Jonathon Derham PGeo  
EPA

## The 'Qualified Person' Regulatory Requirement for Exploration and Mining in Ireland

In common with many other countries, Ireland has long had a regulatory requirement for reports relating to work done under exploration or mining permits (Prospecting Licences

and State Mining Facilities). The massive Bre-X Minerals gold fraud of 1997, and several other scandals, led to international recognition of the need for higher standards and controls in both the conduct of activities and the disclosure of results. The Ontario Securities Commission and the Toronto Stock Exchange immediately established a Task Force which recommended inter alia, in 1998 the need for a 'Qualified Person' to be responsible for technical reports. This became law in Canada in February 2001.

Such an approach gained widespread international acceptance, and essentially has brought the minerals industry into a comparable situation with other areas of professional reporting, such as accountancy and engineering. The benefits were recognised by the then Minister for the Marine and Natural Resources, Dr Michael Woods T.D., in his speech at the inauguration of the Institute of Geologists of Ireland in May, 1999. The Minister also indicated that in due course his Department would only accept reports under the requirements of Prospecting Licences if they had been signed off by a suitable 'qualified person'. This requirement, which was applied also to geological reports lodged in connection with State Mining Facilities, became mandatory as from 1st January 2002.

The approach adopted for an individual to be approved as a 'qualified person' (QP) by the Department of the Marine and Natural Resources is twofold:

- The 'qualified person' must have a recognised geoscience degree with at least 5 years experience in the relevant field, and
- Be a member in good standing of a relevant recognised 'professional association'.

In this the Department is essentially following the requirements for a QP as determined by the Toronto Stock Exchange and Ontario Securities Commission, and published by the Canadian Securities Administrators in March 2000. Specifically, a 'qualified person' recognised as such by the Minister will be a member in good standing of a 'professional association', and a graduate geoscientist with a least five years of experience in mineral exploration, mine development or operation, or mineral project assessment relevant to the mineral project and the technical report, or who otherwise meets the membership requirements of the 'professional association'. A 'professional association' in this context is a self-regulatory organisation of geoscientists, that admits members on the basis of their academic qualifications and experience, requires compliance with professional standards of competence and ethics, and has disciplinary powers.

The Department's requirement therefore involves not only the requisite experience, but also membership of an appropriate professional association. As regards the latter, registered professional membership with any nationally or internationally recognised geoscientific professional body is quite acceptable. Examples of such bodies are the Institute of Geologists of Ireland, European Federation of Geologists,