



Radiological Protection Institute of Ireland
Annual Report and Accounts 2007



Radiological Protection Institute of Ireland
An Institiúid Éireannach um Chosaint Raideolaíoch

To the Minister for the Environment, Heritage and Local Government

In accordance with the requirements of the Radiological Protection Act, 1991,
I have the honour to present the Annual Report and Statement of Accounts
of the Radiological Protection Institute of Ireland for the year ended 31st December 2007.



Prof Eugene Kennedy

Chairman

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Mission Statement

*"To protect people from the harmful effects of ionising radiation,
both natural and man-made, through effective regulation,
monitoring of the environment and the provision of accurate
and timely advice to the public and to Government."*

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Chairman's Statement



I am pleased to introduce the Annual Report and Accounts of the Radiological Protection Institute of Ireland for 2007. The year saw good progress in consolidating the RPII's work on a number of important radiological protection issues.

A key milestone during 2007 was the development of the RPII's Strategic Plan covering the period 2008-2010. The starting point for the development of this strategy was a thorough review of the previous strategy and of the environment in which the RPII now operates. This review, which included input from key external stakeholders and all staff, confirmed a common perception that the RPII had achieved most of its main objectives and delivered on many of its key performance indicators for the period. For the future, however, the review noted that the organisation would benefit from greater clarity in the setting and measuring of strategic objectives and by dedicating greater resources to its communications and advocacy role.

For the coming period, the RPII will seek to sustain its position as a trusted source of information to the public and Government on ionising radiation. It will do this by cooperating effectively with other relevant regulatory bodies and partners with a role in radiation protection and by the enhancement of its engagement with key decision makers. It will also seek to improve the ease of access for the public and Government to high-quality information and monitoring data on all radiation protection issues of concern. Two key radiation protection issues are carried over from the previous strategy and remain firmly on the RPII's agenda. These are the development by Government of a National Radioactive Waste Management Policy and a National Radon Strategy. The RPII will continue to work with Government and with other key agencies to advance these issues.

A major challenge for the RPII identified in its new strategy is the effective implementation of its role in relation to non-ionising radiation. The Government has agreed that the RPII's mandate should be extended to include aspects of non-ionising radiation and a second memorandum setting out the detailed functions to be undertaken is due to be brought to Government by the Minister for the Environment, Heritage and Local Government in due course. The RPII is already working, and will continue to work, to ensure that it is ready to provide the advice and information necessary to fill the role which has been identified.

2007 saw the completion of the final elements of the RPII's assessment of the exposure of the Irish population to ionising radiation which was commenced in 2005. This study, the most comprehensive of its kind undertaken in Ireland, brings together data on exposure of the Irish population to all sources of radiation, both natural and artificial. It involved a detailed examination of each exposure pathway, the identification of radiation doses received by exposed individuals and the calculation of the total and average (*per caput*) dose.

The results of the study show that the estimated annual average dose in Ireland from all sources of radiation is 3950 μSv . The sources include cosmic radiation, radioactivity in the environment (including radon and thoron), occupational radiation as well as radiation used for medical diagnostic purposes. The analysis shows that about 86% of the total dose is due to exposure to natural sources of radiation present in the environment; with the remainder comprising about 14% due to medical exposure and 0.4% due to artificial sources such as nuclear weapons testing, the Chernobyl accident and nuclear discharges from Sellafield. Of the component due to natural sources of radiation, exposure to radon in homes is by far the dominant fraction at about 60%. The data derived from this study will underpin the advice issued to the public and Government on radiation protection issues.

A compilation of all of the RPII's radon measurement results in homes to the end of 2007 shows that the majority are below the national Reference Level for homes of 200 Bq/m³. However, 4314 homes with radon levels above the Reference Level of 200 Bq/m³ have been identified, with 262 of these having levels in excess of 1000 Bq/m³. The figure of 4314 homes represents a small fraction of the 91,000 homes predicted to have radon concentrations above the Reference Level. In addition to the low number of high-radon homes identified, it is clear to the RPII, based on the information available to it, that the rate of remediation of homes with high radon levels is also extremely low. The success of initiatives undertaken by the RPII to date is limited and it continues to press for the development of a national policy on the issue, which brings together all of the relevant government departments and agencies.

The very high level of radon measured in a workplace in Mallow during the year, while fortunately not giving rise to significant radiation doses to the staff due to the limited occupancy of the room in question, did nonetheless focus attention again on the need for a concerted effort on the part of the statutory agencies to address the issue. In the follow-up campaign, the RPII has worked very effectively with the Health Service Executive from the public health point of view and with the Health and Safety Authority from an occupational health perspective. The RPII has also welcomed the very proactive and positive initiatives undertaken both by Mallow Town Council and Cork County Council. The high radon levels subsequently found in social housing in the North Cork region clearly underlines the need for all local authorities to measure radon in the homes and workplaces under their responsibility.

On my own behalf, and on behalf of the Board members, I wish to thank all staff of the RPII for their dedication and hard work during the year. I wish to record also my own thanks and that of the RPII to Prof Kieran Byrne who resigned from the Board in August. I welcome the re-appointment of Mr James Fitzmaurice to the Board and the appointment of two new members, Ms Fionnuala Barker as the nominee of the Irish Nuclear Medicine Association and Dr Kevin Kelleher as the nominee of the Health Service Executive. I wish to thank also the members of the RPII's three Advisory Committees on Environmental Radiation, Medical Radiation and Communications for giving of their time and expertise to assisting the RPII.

Finally, I wish to record the RPII's appreciation for the support and encouragement received during 2007 from the Minister for the Environment, Heritage and Local Government, Mr John Gormley, TD and Minister of State, Mr Tony Killeen, TD. The RPII is also indebted to the officials of the Environmental Radiation Policy Section of the Department of the Environment, Heritage and Local Government and other officials in the Department for their wholehearted cooperation at all times. The helpful collaboration of other government departments, third-level educational institutions, agencies and other external organisations with which the RPII has worked during 2007 is also gratefully acknowledged. I would like to make special mention of the input of all stakeholders to the consultation process on the Strategic Plan and to express my sincere gratitude for their excellent and helpful contributions.



Prof Eugene Kennedy
Chairman



Chief Executive's Statement



2007 was a busy year for the RPII during which it continued to work towards its goal of ensuring that the Irish people are adequately protected from the harmful effects of ionising radiation.

Regulation and Licensing

During 2007 there was a 10% increase in the number of licences in force bringing the total to 1652 by the end of the year. The majority of the new licences were in the dental and veterinary sectors and were as a result of initiatives by RPII to bring previously unlicensed practices within regulatory control. Inspections to monitor compliance with the regulations and with licence conditions were undertaken for 150 licensees, with the principal focus on those activities carrying the greatest radiological risk. Overall the level of compliance was found to be good, with the standards of radiation protection being maintained by those licensees who were inspected. During the year 19 radiation doses in excess of the reporting levels were notified to RPII. Following investigation by RPII inspectors, only three were classified as doses actually received by the wearer, the highest being a whole body dose of 3.9 millisievert (mSv) received by a medical physicist. This dose may be compared with the relevant dose limit of 20 mSv. A review to determine the status of radon measurements in all 12 operational underground mines and showcaves concluded that additional area monitoring was necessary in 11 of them and that personnel monitoring should be continued in those 3 workplaces where area monitoring had previously identified radon concentrations above the workplace Reference Level.

In a joint operation with An Garda Síochána, an RPII inspector seized an unlicensed nuclear moisture density gauge having concluded that the storage arrangements were unsuitable from a security perspective. The individual involved in this case and a second licensee were both prosecuted for unlicensed custody of radioactive

sources. Three incidents involving licensed sources were investigated during the year, as were three further incidents involving contaminated scrap and other metal products. In the two cases involving scrap metal, the radioactive materials were identified by the activation of radiation detectors specifically installed in the port of Rotterdam and at a UK metal recycling company to detect the inadvertent or illicit trafficking of radioactive material.

A significant development during the year was the application by the Regulatory Services Division for accreditation to the ISO standard 17020 (General Criteria for the Operation of Various types of Bodies Performing Inspection) which was submitted to the Irish National Accreditation Board in December. The RPII signed a Memorandum of Understanding with the Health Service Executive for the purpose of facilitating cooperation between both agencies in discharging their respective responsibilities with regard to ionising radiation in order to enhance the effectiveness of both. A peer review of regulatory activities in the non-destructive testing sector was undertaken on behalf of the RPII by the Radiation Protection Division of the UK Health Protection Agency. The review showed that while the RPII's procedures were generally appropriate, the situation could be enhanced by re-categorisation of certain radiation workers and the early establishment of a Radiation Protection Advisor register for the industrial sector. Together with An Garda Síochána, work continued to establish a comprehensive protocol to assess the security arrangements at priority licensee facilities and a number of joint inspections were undertaken with officers from the Garda National Crime Prevention Office. A specialised training course for those involved in the transport of radioactive material was approved in December, the first of its type to be approved in Ireland.

In September, the Minister for the Environment, Heritage and Local Government approved a new schedule of licence fees to come into effect on the 1st October 2007 for new licence applicants and at the time of renewal for existing licensees.

Exposure of the Irish Population to Radiation

The marine monitoring programme undertaken in 2007 showed that the consumption of seafood remains the main pathway contributing to public exposure arising from the discharges of radioactivity from Sellafield. The mean annual committed effective dose to a heavy seafood consumer was 0.74 μ Sv and to a typical consumer was 0.15 μ Sv, both values being consistent with those over the last number of years. The measurement of ambient gamma dose rate at 15 stations around the country and of radioactivity in air at 14 stations showed no abnormal levels. Levels of krypton were also low and consistent with measurements in previous years. The analysis of samples of different individual food types as well as complete meal samples and samples of

drinking water also showed low concentrations of artificial radioactivity, and as such do not constitute a risk to health. A pilot study of natural and artificial radioactivity in ground water supplies was completed as a prelude to a national survey to be carried out between 2008 and 2010. While detectable levels of natural radioactivity were found in some samples, in all cases levels were below the reference values recommended by the World Health Organisation.

The assessment of the dose to patients from diagnostic X-ray examinations and nuclear medicine procedures carried out in Irish hospitals was undertaken during the year. This study was a key element of the project to assess the exposure of the Irish population to radiation from all sources that commenced in 2005. The mean doses for 14 specified commonly performed X-ray procedures, together with an estimate of the number of each procedure performed annually, showed that the highest radiation doses are associated with Percutaneous Transluminal Coronary Angioplasty (PCTA), computed tomography (CT) scans of the abdomen and spine and angiocardiology. CT scans and interventional radiology together represented 43% of the procedures but 74% of the collective dose, while conventional radiology is responsible for 57% of procedures, but only 26% of the collective dose. The *per caput* dose or dose per person averaged over the whole population from diagnostic procedures using X-rays is approximately 500 μ Sv while that attributable to nuclear medicine is 40 μ Sv.

When these results are added to the earlier dose assessments, the total estimated annual average dose from all sources of radiation is 3950 μ Sv. Eighty six percent of this dose is due to natural sources of radiation, 0.4% due to residues from the Chernobyl accident, nuclear weapons testing and discharges from Sellafield and the remainder due to medical exposure of patients.

A survey of artificial radioactivity in coastal waters around Ireland undertaken with the Environment and Heritage Service of Northern Ireland showed that, as expected, the highest concentrations were found on the north-east coast where the impact of discharges from Sellafield is greatest. Comparisons with an earlier study showed that the rate of decline for technetium-99 is greater than for caesium-137 which is expected given the falloff in technetium discharges following the introduction of new waste treatment technology at Sellafield in 2004. The more gradual falloff in caesium levels is also reflective of the fact that concentrations of this radionuclide in seawater are influenced both by current discharges and remobilisation from sediment of historic discharges.

Radon

The highest radon level ever found in a workplace in Ireland, at almost 25,500 Bq/m³, was measured in an office in Mallow between May and August. This level is over 60 times the Reference Level for radon in a workplace of 400 Bq/m³. Fortunately the office in question was largely unoccupied and immediately on identification of the high level, the employer vacated the building.

Subsequent to this finding, the RPII wrote to over 5000 householders and employers in the area advising them of the high level and urging them to test for radon. In addition, separate information campaigns were held in association with the IVERK Agricultural Show in County Kilkenny and the National Ploughing Championship in County Offaly.

By the end of 2007, the RPII had measured radon in 33,869 homes in Ireland, but only 4314 of the estimated 91,000 homes above the national Reference Level had been identified. Of the homes with high radon levels, the highest percentages were found in counties Galway, Sligo and Waterford. Two hundred and sixty two homes had concentrations above 1000 Bq/m³.

Measurement Services

In total, the RPII measured the radioactivity content in 1746 environmental samples and foodstuffs during the year. Certificates specifying the radioactivity content issued to exporters of Irish produce numbered 3445, a drop of about 20% on the previous year. The RPII's Dosimetry Service supplied approximately 84,000 dosimeters to clients during the year. These dosimeters were used to monitor the radiation exposure of about 9000 individuals and radon personnel monitors were also supplied to about 37 show cave guides employed in 3 show caves. The Calibration Service tested 400 instruments for compliance with the relevant manufacturer's specifications. Radon measurements were completed in 2273 homes and 241 workplaces.

Major developments include the implementation of a Laboratory Information Management System (LIMS) serving all of the RPII's laboratories and the selection of a replacement for the gamma beam irradiator used in the Calibration laboratory.

An extensive survey of indoor thoron levels in Irish homes was also launched during 2007. This is the largest such survey to be undertaken in Ireland and probably the largest of its type in Europe to date. Thoron is a naturally occurring radioactive gas which, like radon, can be found in higher concentration in indoor air as compared to outdoor.

Emergency Preparedness

A complete review of the RPII's sub-plan under the National Emergency Plan for Nuclear Accidents (NEPNA) was carried out. The revised sub-plan covers both preparedness arrangements and emergency response arrangements and includes descriptions of each team's role, coordination arrangements, quality assurance and the identification of staff available for each team.

Under the new National Framework for Major Emergency Management, the RPII assisted in the drafting of the Protocol for Multi-Agency Response to Radiological/Nuclear Emergencies which outlines the pre-agreed arrangements for a given category of emergency and sets out the provisions for linking the NEPNA with the Major Emergency Plans.

The upgrade of the National Radiation Monitoring Network continued with the updating and expansion of the air sampling network. Five of the systems on the east and south coasts now include on-line detectors that provide continuous measurement of radioactivity in the air and the remaining seven sample the air but the analysis is conducted at the RPII's laboratory, which allows for a more precise measurement. New computer servers, with increased disaster recovery facilities, were also introduced.

A major exercise of the NEPNA, designed to consider the protective actions to be applied in the agricultural and food sectors following a nuclear accident abroad was undertaken over a two-day period in November. The exercise involving over 40 participants tested the applicability to Ireland of a new European Handbook on contaminated food production systems. Other exercises undertaken during the year included an exercise scenario featuring an accident on a nuclear submarine off the south coast of Ireland with a resulting release of radioactivity to air, and an emergency notification exercise with the UK under the Bi-lateral Agreement between the two countries.

International Activities and Safety of Nuclear Installations Abroad

During 2007, RPII staff represented Ireland on over 20 international scientific and technical committees. A new development during the year was the establishment by the European Commission of a High Level Group (HLG) on Nuclear Safety and Waste Management which brings together the heads of the regulatory authorities in the 27 Member States with a view to developing common standards to improve nuclear safety.

Developments at Sellafield and other UK nuclear sites continued to be monitored closely. The THORP plant, which has been closed since 2005, is still encountering technical difficulties and has not yet recommenced full production. Other difficulties at Sellafield led to the rescheduling of the reprocessing of Magnox spent fuel with an extension of the original completion date of 2012 to

2016 or beyond. The slowdown in reprocessing during the year led to a reduction in the amount of liquid waste being transferred to the Highly Active Storage Tanks (HASTs), and a corresponding overall decrease in the volume of highly radioactive liquid waste in storage. Plans in the UK to build new nuclear power plants are also being monitored and the RPII is following closely the pre-licensing procedures.

In August 2007, RPII staff, at the invitation of the French nuclear regulatory authority ASN, visited the La Hague reprocessing plant in Normandy and the Flamanville nuclear power plant, the site of the new European Pressurised Reactor (EPR) which is due to go on line in 2012.

Corporate Services

The RPII's Corporate Services Division continued to improve its capacity to support RPII's scientific and technical activities through the streamlining and modernisation of its financial management arrangements and the development of its human resources infrastructure. A very welcome development was the approval granted in early 2008 for the recruitment of additional administrative staff set out in a detailed submission to DEHLG two years earlier. A Staff Attitudinal Climate Survey undertaken as a follow up to a similar survey in 2004 highlighted the significant positive impact achieved following the introduction of a Performance Management and Development System in the RPII. A Communications Audit was carried out to examine the internal mechanisms in place for the generation and delivery of external communications. The project to re-develop the RPII's website commenced with a strategic review of the existing website and the new website is expected to be launched by the end of 2008.

During 2007, following the decision by Government in 2006 to extend the RPII's mandate to include aspects of non-ionising radiation, the Board established a Task Group, including international experts, to advise it on the NIR mandate for the RPII and the corresponding resource requirements. The report, which was approved by the Board, was forwarded to the Minister and the DEHLG for consideration in their development of the second Memorandum to be brought to Government.

Finally, I wish to express my personal appreciation to all the staff of the RPII for their continued efforts and dedication in effectively fulfilling the RPII's mandate during the year. I also gratefully acknowledge the support of the staff of the Environmental Radiation Policy Section of the DEHLG and other officials in the Department for the work of the RPII.



Dr Ann McGarry
Chief Executive

Strategic Priorities for the RPII

The Strategy Statement 2005-2007, which was finalised early in 2005, identifies four Strategic Priorities that indicate the overall direction for the RPII up to and including 2007. These are to:

- Provide protection to the Irish public from the harmful effects of exposure to ionising radiation through regulation and advice;
- Proactively identify and meet changing customer needs;
- Implement a development programme for staff which recognises their input and value and facilitates the delivery of the RPII's Strategic Priorities;
- Improve operational efficiencies and effectiveness.

For each strategic priority a number of objectives and actions were identified which indicate how the RPII will address each of the priorities. Key performance indicators to assess the performance against each action are also included.

In January, a business plan for 2007 setting out the particular tasks to be undertaken during the year to address the objectives identified was developed and approved by the Board. The following report sets out the work undertaken in 2007 to address the strategic priorities.



Regulation and Licensing

Introduction

The RPII is responsible for regulating the use of ionising radiation in Ireland through a system of licensing and inspection. Sources of ionising radiation are used under licence throughout the country in a diverse range of applications including diagnostic and therapeutic medicine, research and development, industrial quality control and production processes. The RPII also regulates the exposure of aircrew to cosmic radiation and, where appropriate, work activities involving Naturally Occurring Radioactive Materials (NORM).

Licensing Matters

The RPII licenses the use of ionising radiation in the industrial, medical, educational, dental and veterinary sectors. Since the early 1990s, there has been a continual increase in the number of licensed practices, reflecting the growing range of, and demand for, applications involving ionising radiation as well as a greater level of compliance with the regulations in the dental and veterinary sectors (Figure 1). At the end of 2007, licences were held by 1652 licensees, an almost 10% increase on the number of licences held in 2006. During 2007, 158 new licences were issued with over 80% of these issued to new licensees in the dental (86) and veterinary (44) sectors – Figure 2 illustrates the breakdown of new licences issued since 2003. The significant increase in the numbers of dental and veterinary licensees follows work to bring previously unlicensed practices within regulatory control.

Figure 1: Licences issued between 2003 and 2007

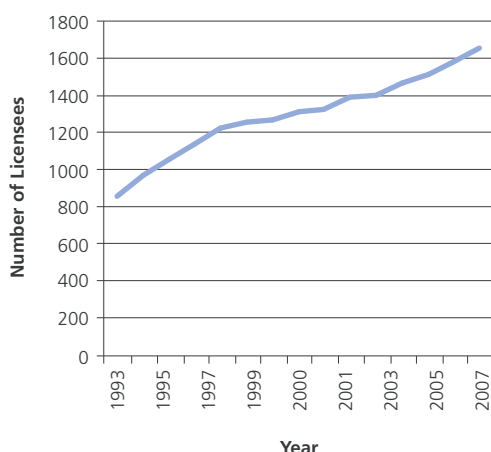
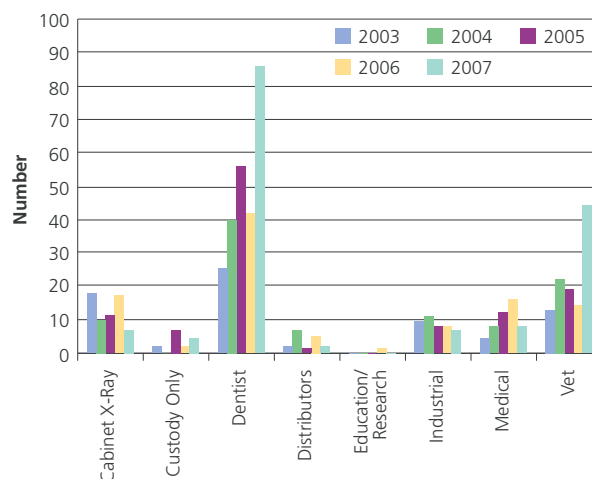


Figure 2: Categories of new licences issued since 2003



As well as issuing new licences the RPII receives requests from licensees to amend existing licences to add new radiation sources, to include new facilities and to reflect changes in licensing details. During the year, 830 amendments were made to existing licences outside of the licence renewal process.

Inspections

In order to monitor compliance with the regulations and with licence conditions, each year the RPII undertakes a programme of inspections of licensees' facilities. Licensees included in the programme for 2007 were selected on the basis of the radiological risk associated with their activities, the date of the previous inspection and any relevant issues that may have arisen such as reported incidents or complaints from the public. In addition, three new private radiotherapy facilities that had opened during 2006 as well as several licensees holding high activity sealed sources were included in the programme. As in previous years, a number of inspections of licensees engaged in industrial radiography and those who operate portable nuclear moisture density gauges were undertaken. Table 1 summarises the inspections completed per category of licensee during 2007. Overall, the level of compliance with the regulations and licence conditions was found to be good with the standards of radiation protection being maintained by those licensees who were inspected. However, some non-compliance was detected including the failure to notify the local fire officer of the presence of licensed items and failings with regard to personnel monitoring programmes. This underlines the importance of on-site inspections in ensuring high standards of radiation protection.

Table 1: Inspections undertaken in 2007

Licence Category	Number in Category	Inspections Undertaken in 2007
Industrial Users	306	75
Industrial Distributors	30	2
Education & Research	20	6
Government Departments and State Run Services	5	2
Hospitals/Medical	167	37
Medical Distributors	26	3
Veterinary Surgeons	230	13
Dentists	868	12
TOTAL	1652	150

Accreditation

The RPII continually seeks to improve the quality and consistency of its service to its customers. In particular, the RPII has been working to develop a quality system for its inspection activities in line with ISO 17020 (General Criteria for the Operation of Various Types of Bodies Performing Inspection), an international standard specifically designed for inspection bodies. The quality system provides a framework for planning and reviewing the annual inspection programme, for the conduct of inspections, the follow up to inspections and the training of inspectors. Furthermore, the system will facilitate continuous improvement through a transparent process of document management and periodic audits involving all staff. In December, an application for accreditation to the ISO standard was submitted to the Irish National Accreditation Board (INAB).

Developments in Regulatory Practice

Dental Licensing

In a continuing programme to ensure best radiation protection practice in the dental sector, the RPII introduced new licensing requirements for dental licensees during the year. In accordance with the provisions of S.I. No. 125 of 2000 all dental licensees must appoint an approved Radiation Protection Adviser (RPA) from the register maintained by the RPII and consult with that person on all matters relating to radiation protection. The RPII advised all dental licensees that for the September 2008 renewal programme each licensee must have ensured that their appointed RPA has undertaken a review of the shielding requirements for each dental surgery and that the biennial QA testing for each X-ray unit has been completed; for new applicants these licensing requirements took effect from the 1st October 2007. New licensing requirements

were also introduced for the distributors of dental X-ray equipment, requiring them to provide a written report of an installation examination whenever new dental X-ray units are installed.

Following liaison with the Dental Council, it emerged that there may still be a significant number of dental practices using X-ray equipment without a licence from RPII. Work commenced in 2007 to identify these potentially unlicensed practices by comparing the RPII's licensing database against several relevant public databases. The results of these searches indicated that there may still be as many as 141 potentially unlicensed dental practices throughout Ireland. While this figure is significant, it is substantially less than originally thought. The RPII is working to bring all such unlicensed dental practices within the regulatory framework in cooperation with the Dental Council.

Non-Destructive Testing

With the objective of ensuring best regulatory practice in relation to the non-destructive testing and off-shore oil and gas industries, the RPII commissioned the Radiation Protection Division of the UK Health Protection Agency (HPA) to undertake a peer review of its regulatory activities in these sectors. The final report from the expert reviewer noted that the RPII's regulatory and licensing procedures were appropriate but made a number of recommendations in relation to the categorisation of certain radiation workers and the prioritisation of the establishment of a RPA register for the industrial sector.

Security of Sources

The security of radioactive sources at licensed facilities continues to be a significant concern to the RPII and work continued during 2007 with An Garda Síochána to establish a comprehensive protocol and work programme to assess priority facilities with the objective of ensuring high standards of security on site. In addition, a number of joint inspections were undertaken in conjunction with officers from the Garda National Crime Prevention Office. These inspections focused on a review of the security arrangements in place at licensees' premises particularly in relation to the management of disused sources. Following the completion of each inspection, a series of recommendations was made to the licensees in relation to improving security arrangements.

Transport of Radioactive Material

The RPII has a statutory responsibility in relation to the approval of specialised training courses for those involved in the transport of radioactive material. In December 2007, the RPII approved the first such course in Ireland for drivers and this is a significant step forward in the availability in Ireland of radiation protection training in the transport sector.

Memorandum of Understanding with the Health Services Executive

The Health Services Executive (HSE) and the RPII signed a Memorandum of Understanding (MoU) in September. The purpose of the MoU is to provide a framework for engagement between the two agencies in areas of mutual responsibility and shared interest. It seeks to facilitate cooperation between both agencies in discharging their respective responsibilities with regard to ionising radiation in order to enhance the effectiveness of both, to avoid duplication of effort and conflicting requirements and to promote best practice in radiation protection.

The main themes that fall within the scope of the MoU include: operational aspects of the regulation and use of ionising radiation in the medical sector; mutual cooperation in the implementation of all relevant legislation with regard to ionising radiation; emergency preparedness in relation to radiological incidents at home and nuclear accidents abroad; radon as a public health hazard as well as, where appropriate, the management and sharing of data.

The RPII has been seeking opportunities to engage with all relevant statutory bodies with a role in the regulation of the use of ionising radiation in the medical sector with a view to developing a common understanding of respective roles and responsibilities and identifying areas where coordination might provide efficiencies and added value.

Shipments Directive

The European Council issued Directive 2006/117/EURATOM on 20th November 2006 dealing with the supervision and control of shipments of radioactive waste and spent fuel between European Member States as well as third countries. The Directive must be transposed into Irish law replacing existing regulations S.I. 276 of 1994 by December 2008. The RPII has advised the Department of the Environment, Heritage and Local Government (DEHLG) in respect of the practical and legal matters involved.

Licence Fees

The RPII charges fees for the issuing and subsequent renewal of the licences that it grants. The schedule of application and licence fees used to date by the RPII was approved in 1994 and there was no increase in licence fees in the intervening years. Grant Thornton, a financial consultancy firm, was engaged to carry out a review of costs incurred by the Regulatory Services Division.

In October 2005, the RPII submitted the new schedule of licence fees, together with draft regulations, to the DEHLG for ministerial approval and enactment. In September 2007, the Minister for the Environment, Heritage and Local Government approved the new licence fees by enacting the Radiological Protection Act, 1991

(Licensing Application and Fees) Regulations, 2007 (S.I. No. 654 of 2007). The new schedule of application and licence fees took effect on 1st October 2007 for new licence applicants. All existing licensees will be charged the new fees at the time of their next licence renewal.

Reportable Doses

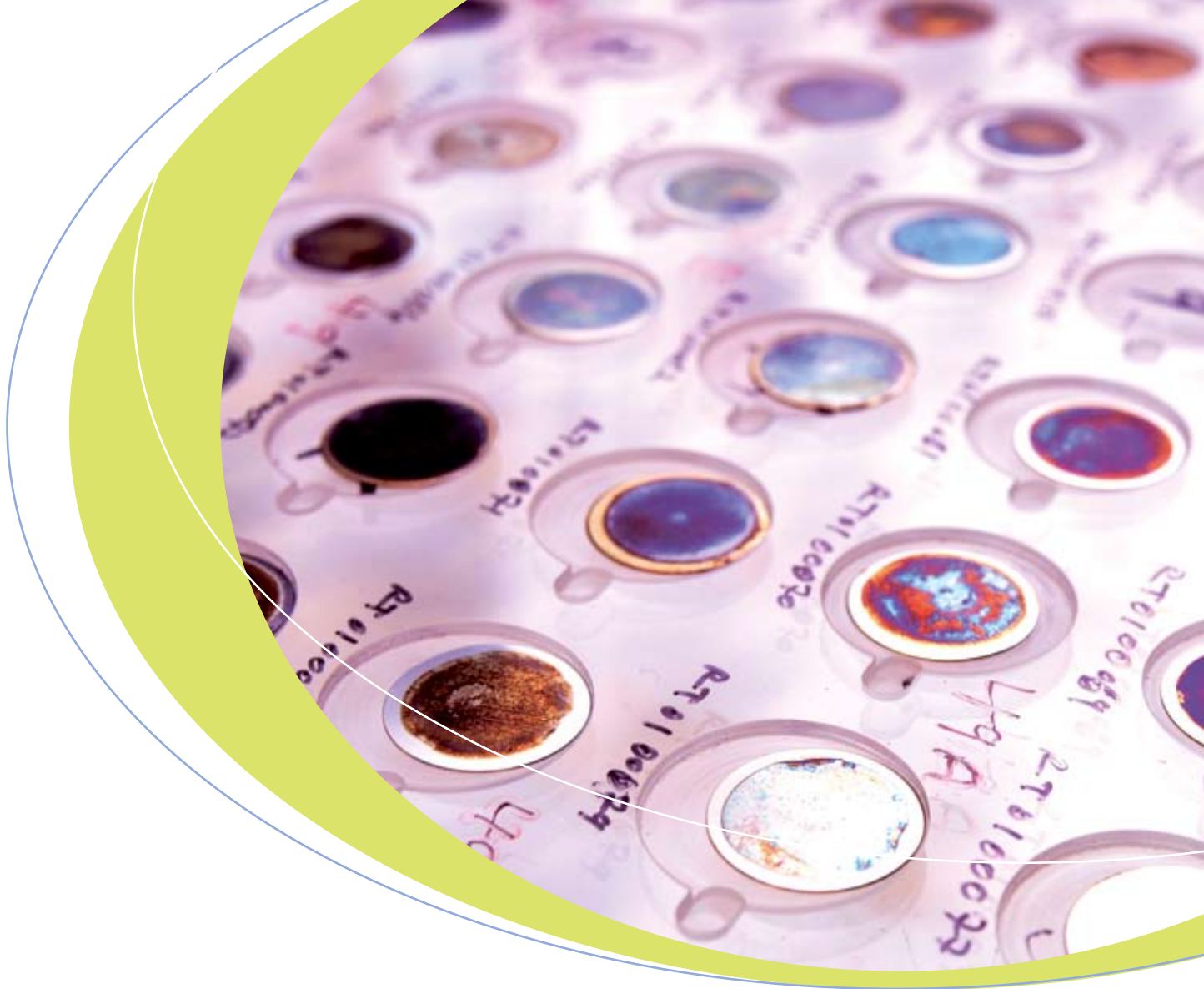
In accordance with best radiation protection practice, all workers involved with sources of ionising radiation, with the exception of cabinet X-ray equipment and DXA scanners, must wear personal dosimeters at all times. It is a condition of each licence that whenever a dose exceeding a specified reporting level is recorded on a personal dosimeter a full investigation of the incident must be carried out by the licensee. The reporting levels for whole body and extremity doses received over a 16 week period are 2 millisievert (mSv) and 50 mSv respectively.

The RPII was notified of 19 such reportable doses during the year. Following investigations into each reported dose only three were classified as doses actually received by the wearer: an operator of a nuclear moisture density gauge (2.6 mSv – wholebody), a post-graduate research student using phosphorus-32 (3.0 mSv – wholebody) and a physicist working with fluorine-18 in the preparation of Positron Emission Tomography (PET) pharmaceuticals (3.9 mSv – wholebody).

Following investigations, the doses received by the gauge operator and the postgraduate student were determined to be mainly due to poor adherence to radiation safety and operational procedures. In relation to the dose received by the physicist from fluorine-18, the investigation was unable to reconstruct the exact circumstance of the dose delivery and while no further doses were reported on subsequent dosimeters at the facility, all of the operating procedures have been reviewed and updated to ensure best practice.

Enforcement

In a joint operation with An Garda Síochána, an RPII Inspector took control of the custody of an unlicensed nuclear moisture density gauge in accordance with his powers under Section 29(2) of the Radiological Protection Act, 1991. The Inspector had deemed that the storage arrangements for the gauge were unsuitable from a security perspective, that the individual involved was not in a position to handle the source safely and that the source posed a potential hazard to members of the public. The source was later transferred to an alternative storage location. This individual was prosecuted for unlicensed custody of a nuclear moisture density gauge in 2008. The RPII also prosecuted an industrial licensee for the unlicensed custody of radioactive sources.



Incidents

During the year, the RPII investigated a number of incidents involving licensed sources including a mislaid source in transit, the inadvertent exposure by an industrial X-ray system and a minor spill involving an unsealed source. The RPII also investigated a number of incidents involving contaminated scrap and metal products.

In March, the RPII was advised that a ship containing scrap metal from Ireland had been detained in the Netherlands following the activation of a radiation detector in the port of Rotterdam. Subsequent investigation by the Dutch Authorities confirmed that a small number of scrap metal pieces in the consignment contained enhanced levels of naturally occurring radioactive material (NORM). Inspectors from the RPII undertook a survey of the site in Ireland from which the scrap metal had originated, however no other NORM material was identified. The contaminated scrap metal pieces were eventually transferred to the Dutch Central Facility for the Collection, Treatment and Storage of Radioactive Waste.

In March, an investigation was carried out in conjunction with Customs and Excise officers concerning the possible import of consumer goods contaminated with cobalt-60. This investigation was undertaken following an alert from the IAEA advising that both US and UK Customs authorities had reported the unauthorised movement of metal products by sea, including cast-iron manhole covers, steel forgings, steel rods and metal attachments on leather goods, from India. The investigation concluded that while similar metal products had been imported from India they had originated from different suppliers and locations to those identified in the IAEA alert. Measurements made by RPII inspectors on some sample products confirmed that no radiation levels above natural background were detectable.

Radioactive material was also detected during May by a UK metal recycling company in a shipment of scrap sent by a metal recycling company in Ireland. Investigations by the UK company's RPA identified the cause of the alarm as an old stainless steel radiography container which incorporated depleted uranium (DU) as a shield. The RPII investigations could not trace the origin of the container. However, it was confirmed that it did not originate

from any of the currently licensed radiography companies in Ireland. The container was kept in secure storage by the UK company prior to its treatment by a specialised contractor.

These incidents highlight the importance of the use of portal monitoring systems in the detection of inadvertent or illicit trafficking of radioactive material. The High Activity Sealed Sources Directive (HASS) transposed into Irish law through S.I. No 875 of 2005 encourages each Member State to establish such facilities at significant transit nodal points.

Radon in Underground Workplaces

A priority objective of the RPII in 2007 was to undertake a review to determine the current status of radon measurements in all 12 operational underground workplaces in Ireland as the potential exposure to workers in these facilities is significant. As part of the review all 12 workplaces were visited during the year. The review concluded that further area monitoring was necessary in 11 of these workplaces. In addition, it was recommended that personal monitoring of workers be continued in three workplaces where area monitoring had previously identified radon concentrations above the workplace Reference Level of 400 becquerels per cubic metre (Bq/m³).

Radioactive Waste

Unwanted radioactive sources or radioactive waste is held under licence at 80 different locations throughout the country. The RPII is increasingly concerned for the long-term safety and security of these sources, some of which have a very high radioactive content. The legal responsibility for the safety and security of such sources rests with the holder but the retention of sources in these circumstances does not represent best practice. Despite the tightest of regulatory controls the situation whereby companies have to hold sources that they no longer need represents an accident waiting to happen, particularly in cases where the necessary security and storage arrangements are financially demanding. It has been the RPII's long standing advice to Government that a central waste storage facility for the interim storage and management of these types of sources needs to be put in place. The RPII continued to press for the establishment of such a facility during 2007.



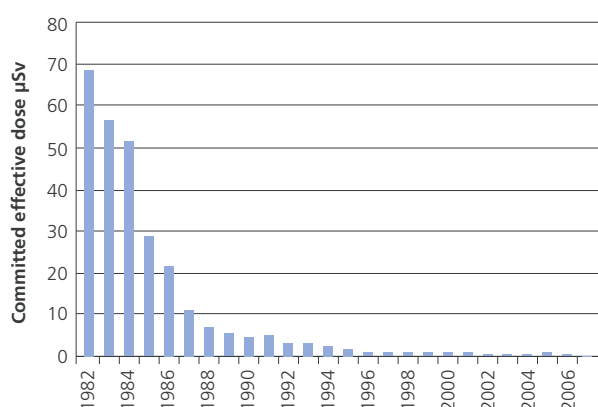
Exposure of the Irish Population to Radiation

Environmental Monitoring

The RPII's environmental monitoring programme aims to measure the exposure of the Irish population from radioactivity in the environment, to assess the distribution of radioactivity in the Irish environment and to maintain systems and procedures which would allow a rapid assessment of environmental contamination to be made in the event of a radiological emergency. This programme involves the sampling and testing for radioactivity in air, drinking water, foodstuffs, fish, shellfish, seaweed, sediments and seawater as well as the continuous measurement of external gamma radiation. Artificial radioactivity is present in the environment due *inter alia* to the testing of nuclear weapons, past nuclear accidents such as Chernobyl and the routine discharges from nuclear installations. Liquid discharges from the Sellafield nuclear fuel reprocessing plant in the north-west of England remain the dominant source of artificial radioactivity in the Irish Sea.

The marine monitoring data show that the consumption of seafood remains the main pathway contributing to public exposure arising from discharges of artificial radioactivity. In 2007, the mean annual committed effective dose to a heavy consumer of seafood from the Irish Sea was found to be 0.74 μSv , which may be compared 0.75 μSv in 2006 and 1.1 μSv in 2005. These data are consistent with measurements made over the last decade, during which time the doses to seafood consumers have remained relatively constant. Figure 3 illustrates the doses between 1982 and 2007 due to caesium-137, which accounts for approximately 70 % of the seafood ingestion dose.

Figure 3: Committed effective doses to heavy seafood consumers due to caesium-137, 1982-2007



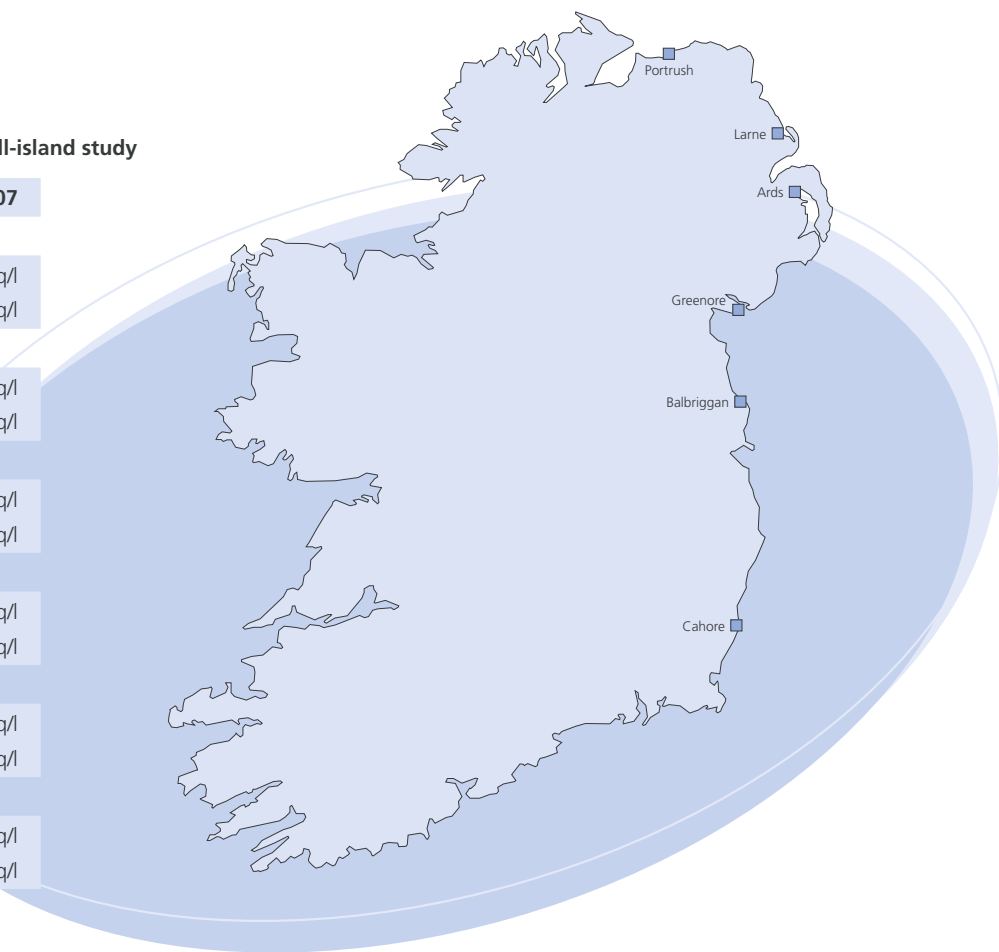
During 2007, the RPII, in collaboration with the Environment and Heritage Service of Northern Ireland, repeated the survey carried out in 2006 of the levels of artificial radioactivity in coastal waters around the island of Ireland. Concentrations of caesium-137 and technetium-99 were measured at six locations on the east coast including three from Northern Ireland. The results are presented in Figure 4. The highest concentrations of these radionuclides were found on the north-east coast where the impact on Ireland of the operations at the Sellafield reprocessing plant is greatest. Comparing the data for 2006 and 2007 shows the continued fall in concentrations of caesium-137 and technetium-99 in the Irish marine environment. It can be seen that the rate of decline between these two years is faster for technetium-99 than for caesium-137. This is due to the rapid decline in discharges of technetium-99 from Sellafield since the introduction of new waste treatment procedures at the plant in 2004 and the fact that caesium concentrations in the water column are now more heavily influenced by the remobilisation of historic discharges from sediment than by current Sellafield discharges.

The RPII, with the assistance of Met Éireann and other organisations, operates a National Radiation Monitoring Network which includes continuous measurement of ambient gamma dose rate, airborne particulate sampling for assessment of radioactivity in air and collection of rain water. During 2007, ambient gamma dose rate was measured at 15 stations and radioactivity in air was measured at 14 stations. No abnormal levels of ambient gamma dose rate were observed during the period. Concentrations of the gas krypton-85, which is released into the environment primarily as a result of reprocessing of nuclear fuel, were also measured at the RPII's laboratory in Clonskeagh. Levels of airborne radioactivity measured were all low and consistent with measurements in previous years.

A wide range of sample types including, milk, milk products, baby foods, beef, lamb, poultry, vegetables, complete meals and drinking water were also measured to assess the levels of artificial radioactivity in the Irish diet. The results of these analyses show that levels of radioactivity in foodstuffs continue to be very low. In addition to routine monitoring of drinking water, a study of natural and artificial radioactivity in ground water supplies was carried out in 2007. Samples were collected in collaboration with the Environmental Protection Agency's groundwater monitoring programme and results were compared with the parametric values set out in the European Communities (Drinking Water) (No. 2) Regulations 2007, which implements the Drinking Water Directive. All of the samples tested were found to be compliant with these requirements.

Figure 4: Radioactivity in seawater – all-island study

	2006	2007
Portrush		
Tc-99:	5 mBq/l	5 mBq/l
Cs-137:	11 mBq/l	13 mBq/l
Larne		
Tc-99:	14 mBq/l	6 mBq/l
Cs-137:	15 mBq/l	15 mBq/l
Ards		
Tc-99:	15 mBq/l	6 mBq/l
Cs-137:	10 mBq/l	20 mBq/l
Greenore		
Tc-99:	13 mBq/l	12 mBq/l
Cs-137:	23 mBq/l	19 mBq/l
Balbriggan		
Tc-99:	10 mBq/l	7 mBq/l
Cs-137:	20 mBq/l	18 mBq/l
Cahore		
Tc-99:	6 mBq/l	3 mBq/l
Cs-137:	13 mBq/l	10 mBq/l



The RPII's monitoring programme continues to show that the doses incurred by the Irish public as a result of artificial radioactivity in the environment do not constitute a health risk and are very small compared with the dose received as a result of background radiation. All results are published in a series of monitoring reports which are available on the RPII's website.

Article 35 Verification

Article 35 of the Euratom Treaty requires that each Member State carries out continuous monitoring of the levels of radioactivity in the environment. It also gives the European Commission the right to access monitoring sites, laboratories and facilities that discharge radioactivity in order that it may verify their operation and efficiency. To this end, a team from the Commission carried out a verification mission in Ireland during 2007. This team visited a number of environmental radioactivity monitoring sites and two hospitals. The team concluded that the requirements of Article 35 are fully met by the facilities, staff and monitoring programme of the RPII and that the work is carried out efficiently and effectively. These findings are an important independent validation of the RPII's environmental monitoring programme. The reports relating to this verification, when finalised, will be available on the Commission's website.

Dose Assessment

In 2005, the RPII commenced a three year project to assess the various sources of radiation to which the Irish population is exposed. This involved examining each pathway in detail, identifying the radiation doses received by exposed individuals and calculating both the total and the average (*per caput*) dose. This work was concluded in 2007 and a summary report on the findings has already been published.

During 2007, the main focus was on assessing the doses to patients undergoing medical diagnosis. The doses from diagnostic X-ray examinations and nuclear medicine procedures carried out in Irish hospitals were estimated through the use of questionnaires. Radiation doses from radiotherapy were not assessed as part of the survey as these intentionally deliver high cell-killing doses to specific tissues and organs that are not comparable with other radiation exposures.

Large hospitals with conventional X-ray, computed tomography and nuclear medicine departments were asked to provide information on patient numbers for the calendar year 2006 and mean doses for 14 specified commonly performed X-ray procedures. These procedures have been reported internationally as giving rise to high doses. These hospitals were also asked to provide data for nine commonly performed nuclear medicine procedures. Smaller

hospitals were asked to provide information on the numbers of examinations performed per year for each of the procedures listed. The results for the two groups of hospitals were then combined to obtain an estimate of the total number of times each procedure was carried out and the average dose per procedure. A scaling factor was applied to take account of diagnostic procedures not included and which are known to deliver low radiation doses.

Table 2 shows that the estimated number of diagnostic radiological procedures carried out in Ireland in 2006 was just under 598,000. The highest radiation doses are associated with Percutaneous Transluminal Coronary Angioplasty (PTCA – a procedure used to treat heart disease), CT scans of the abdomen and spine and angiocardiology. CT scanning represents 36% of the procedures undertaken but contributes 56% of the collective dose while interventional radiology represents 7% of the procedures undertaken and 18% of the collective dose. Conventional radiology is responsible for 57% of the procedures undertaken but only 26% of the collective dose.

Table 2: Estimated number of procedures carried out in Ireland and the associated mean patient dose (2006)

Procedure	Estimated Number of Procedures per Year*	Mean Dose (mSv)
CT abdomen	60,900	8.2
CT chest	39,700	5.1
CT pelvis	38,000	6.8
CT head	70,300	2.0
CT spine	8100	7.9
Barium enema	5800	4.6
Angiocardiology	24,000	6.0
PTCA	13,900	17.1
Abdomen (plain film)	92,400	0.6
Lumbar spine	68,300	1.0
Pelvis	61,900	1.3
Mammography	60,400	0.5
Intravenous Urogram	1300	1.9
Hip	52,700	0.6

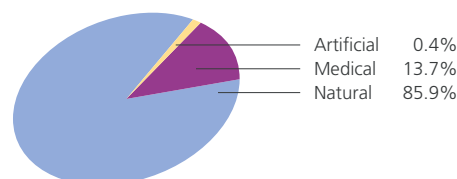
* Rounded to the nearest one hundred procedures.

The *per caput* dose from diagnostic procedures using X-rays is approximately 500 μ Sv while that attributable to nuclear medicine is 40 μ Sv. The total *per caput* dose as a result of diagnostic medical exposures of patients to radiation is therefore 540 μ Sv.

The estimated annual average dose in Ireland from all sources of radiation is 3950 μ Sv. The corresponding value in the United Kingdom is 2600 μ Sv and the worldwide average is 2800 μ Sv. These sources include cosmic radiation, radioactivity in the environment (including radon and thoron) and occupational radiation as well as the medical procedures discussed above. This is an increase of 10% from a value of 3620 μ Sv published in 2004. This difference is due to the fact that, because of the absence of national data, previous estimates of the doses from medical procedures and from thoron were based on international average values. In addition, the contribution from cosmic radiation to the total dose is now better understood. Previously this was estimated as 300 μ Sv but has now increased to 345 μ Sv. The recent growth in air travel is the main factor in this increase.

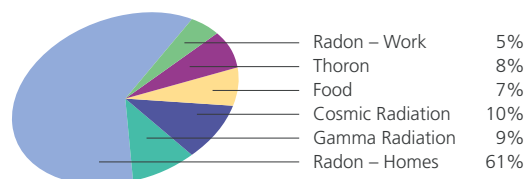
Figure 5 shows that just less than 86% of the total dose is due to natural sources of radiation, while artificial sources such as nuclear weapons testing, the Chernobyl accident and nuclear discharges from Sellafield represent less than 0.4%. The remainder is due to the medical exposure of patients.

Figure 5: Distribution of average radiation doses in Ireland



The distribution of radiation doses from natural sources is shown in Figure 6. Radon contributes over 65% of the total dose, most of which is due to exposure in the home. The other four main sources contribute between 250 and 350 μ Sv each. For many of the pathways included in the study there is a large variability in the radiation dose received by individuals within the population.

Figure 6: Distribution of radiation doses in Ireland from natural sources of radiation



Radon

Radon, a naturally occurring radioactive gas that originates from the decay of uranium in rocks and soils, continues to be the principal source of radiation exposure of the Irish population. During 2007, the RPII continued its efforts to raise awareness of the hazards from radon gas through radon road shows and operating information stands at public events, through meetings with employers and trade union groups and by promoting implementation of the Radon Action Plan.

Radon Road Show Mallow, County Cork

In May, in collaboration with Mallow Town Council and Cork County Council, the RPII held a radon road show in Mallow, a known High Radon Area. This road show was successful in generating much local interest in radon which resulted in an increase in radon measurements in the area. One subsequent radon measurement made between May and August at a workplace in the town recorded nearly 25,500 Bq/m³ in one of the offices. The statutory Reference Level for radon in a workplace is 400 Bq/m³.

This is the second highest level of radon gas ever found in Ireland and the highest ever found in a workplace. Fortunately the office in question was largely unoccupied and, on that basis, employees would not have received very high radiation doses. The employer, who was renting the premises, vacated the building and the offices. The RPII notified the landlord that the radon concentrations must be reduced before it is occupied by a new tenant.

Subsequent to the finding, the RPII wrote to over 5000 householders and employers in the area advising them of the high reading and urging them to test for radon. Also, working in collaboration with Mallow Town Council and Cork County Council, a second road show was held in October that included public meetings. These meetings were well attended and allowed the local public to ask questions regarding their radon risk in light of the extremely high reading. These efforts further increased radon measurements in the area and the results of these measurements will provide an improved picture of the radon risk in Mallow and north Cork.

RPII Information Campaigns

In September, the RPII operated information stands at the IVERK agricultural show in Piltown, County Kilkenny and the National Ploughing Championship held in Tullamore, County Offaly. The RPII's participation in these events proved very successful and approximately 1000 people visited the RPII stands.

During the year, meetings were held with IBEC, IMPACT and SIPTU and representatives of the Communications Workers Union in Mallow to ensure that they were aware of the potential hazards from radon in workplaces.

Radon Action Plan

For some time the RPII has been aware that, on its own, it cannot deal with all the issues relating to radon and that a multi-agency approach is required. For that reason, the RPII developed a Radon Action Plan aimed at bringing together all of the interested groups in order that a national policy on radon might be developed. The Plan was submitted to Government in July 2006. Since then, the RPII has used every opportunity available to it to promote adoption of the Plan, including raising the issue directly with Government Ministers. A formal response is still awaited.

Radon Measurement Statistics

Table 3 shows that at the end of December 2007, the RPII database of radon measurements contained 33,869 results, of which 11,319 were made as part of the National Radon Survey. The remainder were either fee-paying measurements or carried out as part of RPII local surveys. To date only 4317 homes from an estimated 91,000 with radon concentrations above the national Reference Level of 200 Bq/m³ have been identified. Of these, 262 have radon concentrations above 1000 Bq/m³. The counties with the highest percentage of homes identified above the Reference Level are Galway, Sligo and Waterford.

Where individual results exceed 800 Bq/m³, the RPII contacts the householder directly by telephone to discuss the implications of the result and to encourage early remediation. When radon concentrations in homes above 4000 Bq/m³ are identified, a media campaign is initiated to encourage those living in the immediate vicinity to measure for radon.

Table 3: Distribution of radon measurement results by county (based on measurements completed up to 31st December 2007)

County	Number of houses measured	% homes > 200 Bq/m ³	Number of houses in categories of radon concentration			Highest measured concentration (Bq/m ³)
			0-199 Bq/m ³	200-999 Bq/m ³	>1000 Bq/m ³	
Carlow	653	18%	536	115	2	1725
Cavan	343	3%	332	11	0	780
Clare	3004	11%	2668	307	29	2980
Cork	3574	9%	3253	312	9	2309
Donegal	1009	5%	961	48	0	512
Dublin	2146	6%	2012	133	1	1410
Galway	4362	20%	3490	823	49	3434
Kerry	2892	14%	2497	328	67	49,000
Kildare	919	5%	873	45	1	1114
Kilkenny	858	12%	756	99	3	2444
Laois	472	4%	455	17	0	565
Leitrim	278	6%	262	15	1	1630
Limerick	976	8%	900	73	3	1857
Longford	255	7%	237	18	0	552
Louth	505	13%	438	67	0	751
Mayo	2911	16%	2440	455	16	6203
Meath	662	9%	603	59	0	932
Monaghan	233	6%	218	15	0	794
Offaly	400	3%	388	12	0	495
Roscommon	503	4%	452	50	1	1387
Sligo	1310	24%	1000	282	28	5508
Tipperary	1476	10%	1322	143	11	2394
Waterford	942	22%	739	184	19	3023
Wexford	1215	14%	1043	166	6	2926
Westmeath	476	9%	433	43	0	699
Wicklow	1495	17%	1247	232	16	16,438
TOTAL	33,869	13%	29,555	4052	262	

Radiation Measurement Services

Introduction

In addition to the analyses undertaken as part of its environmental monitoring programme, the RPII provides a wide range of radiation measurement services to clients in Government, industry, medicine and the general public. These services include: radon measurement, personnel dosimetry, instrument calibration, product certification and analytical services. The RPII is committed to maintaining a high standard of quality in all aspects of its monitoring and measurement activities and implements an ISO 17025 compliant quality system, which is accredited by the Irish National Accreditation Board (INAB). As part of its programme of continuous improvement, the RPII regularly reviews and upgrades its laboratory practices and facilities so as to ensure the delivery of state-of-the-art measurement services. During 2007, the RPII undertook a major upgrade of its IT facilities with the introduction of a cross-divisional Laboratory Information Management System (LIMS).

Analytical Services

The laboratory measures radioactivity in a wide range of samples on behalf of external clients. The contract analytical services provided during 2007 included: testing of Irish produce for compliance with the requirements of importing countries, testing of drinking water for compliance with the requirements of the European Communities Regulations, analysis of wipe tests of radioactive sources, testing and certification of dredging samples for compliance with the Dumping at Sea Act, 1996, and measurement of radon in drinking water. In total, 1746 samples were tested during the year and Table 4 presents the breakdown of this number by sample type.

The RPII continues to provide a certification service to exporters of Irish foodstuffs and other produce. The number of product certificates issued in 2007 to exporters of Irish produce was 3445. This may be compared with 4229 in 2006 and 4422 in 2005, which indicates a decrease in demand for this service.



Table 4: Radioactivity testing on environmental samples and foodstuffs, 2007

Environmental monitoring samples	723
Wipe tests	359
Contract analysis of foodstuffs	521
Contract analysis of drinking water	86
Contract analysis of pharmaceuticals and concentrates	75
TOTAL	1764

Personnel Dosimetry

During 2007, some 84,000 dosimeters were supplied by the Dosimetry Service to clients throughout Ireland with approximately 9000 individuals being monitored. There was a marginal increase in the number of dosimeters issued in 2007 compared to 2006 and 2005 when 80,000 and 82,000 respectively, were issued.

During 2007, the Dosimetry Service collaborated in the development of an algorithm to improve evaluation of doses from low energy X-rays using the Panasonic UD-802A thermo luminescent dosimeter (TLD). This work was carried out in conjunction with Panasonic Industrial Europe, University Hospital Birmingham and CIEMAT in Madrid. This work will result in the development of a dose algorithm that can be used to correct the dose response at low energies such as X-ray radiation using a four element TLD taking advantage of the behaviour of two different independent phosphors Lithium Borate and Calcium Sulphate.

Dosimetry staff continued to make an input in two international groups, the European Radiation Dosimetry Group, EURADOS, at Council level, and the Personal Radiation Monitoring Group, PRMG, which stimulate collaboration on dosimetry issues. EURADOS is currently involved, with the Greek Atomic Energy Commission (GAEC), in establishing European Technical Recommendations for monitoring individuals exposed to external radiation.

Instrument Calibration

In 2007, 400 instruments were tested by the Service for compliance with the relevant manufacturer's specifications.

The review of the Calibration Service facilities carried out in 2006 concluded that the beam irradiation system used by the Service was vulnerable to failure and its operation was labour intensive compared to modern systems. The review recommended that the system should be replaced with a modern system better meeting the requirements of the Service. In 2007, the Service issued an invitation to tender for replacement of the existing gamma beam irradiator based on the technical requirements identified in the review. Following a detailed assessment of a number of irradiator systems, a contract for a replacement system was signed in August for delivery and commissioning during 2008.

The Calibration Service continued its involvement in a number of international groups. The Service is a member of the International Atomic Energy Agency Secondary Standard Dosimetry Network and the Ionising Radiation Metrology Forum. The Service is also involved in the European Metrology group, EURAMET, whose objective is to promote the coordination of metrological activities and services with the purpose of achieving higher efficiency.

Radon Measurement

Radon measurements continued to be undertaken in significant numbers. During 2007, a total of 7017 radon in air measurements were completed in 2273 households and 241 workplaces. The Service also continues to provide personnel monitoring for show cave guides and other underground workers. During the 2007 operating season, a total of 37 staff employed in 3 show caves were monitored.

Thoron Measurement

In 2007, the RPII launched an extensive survey of indoor thoron levels in Irish homes. The survey is being undertaken in collaboration with University College Dublin (UCD) and the National Institute of Radiation Science (NIRS) in Japan. Thoron is a naturally occurring radioactive gas (half-life 55.6 sec), which, like radon, can be found in higher concentrations in indoor air compared to outdoor. In Ireland, as in many other countries, a very limited number of indoor measurements of thoron and thoron decay products have previously been made. The principal source of thoron in indoor air is building materials, while, unlike radon, the local geology usually has little influence on the levels of thoron in homes. This is because the short half-life of thoron means that most of it has decayed by the time it migrates from the underlying soil into the home.

Emergency Preparedness

Under the National Emergency Plan for Nuclear Accidents (NEPNA), the RPII is responsible for assessing the impact on Ireland of any nuclear accident taking place abroad and offering advice on the range of countermeasures that might be considered. In support of these functions, the RPII operates a National Radiation Monitoring Network and regularly participates in national and international emergency exercises. The RPII also plays a very active role in national initiatives linked to the NEPNA.

RPII Emergency Plan

All Government Departments and agencies with responsibilities under the NEPNA are required to have written sub-plans showing how they will carry out these responsibilities. In 2007, the RPII carried out a complete review of its sub-plan. During this process, the RPII's sub-plan was presented to all staff in the RPII, the different roles anticipated for staff were discussed and feedback was sought on possible improvements to the plan. In parallel, good practice was identified through reviews of international guidance documents and discussion of emergency plans with other organisations in Ireland and abroad with experience in emergency planning. The revised sub-plan covers both preparedness arrangements and emergency response arrangements and includes descriptions of each team's role, coordination arrangements, quality assurance and identification of staff available for each team. Following this review, a training plan covering 2008 to 2010 has been prepared to ensure that staff has the skills and experience necessary for their assigned response role.

Framework for Major Emergency Management

In September 2006, a new Framework for Major Emergency Management was launched by Government with a two-year implementation timeframe. The Framework is intended to enable An Garda Síochána, the Health Service Executive and local authorities (the Principal Response Agencies), to prepare for and make a coordinated response to major emergencies resulting from events such as fires, transport accidents, hazardous substances incidents and severe weather. As part of the two-year Major Emergency Development Programme, a series of inter-agency protocols to underpin the multi-agency response to different categories of emergency is being developed. The RPII assisted in the drafting of the Protocol for Multi-Agency Response to Radiological/Nuclear Emergencies. The protocol outlines the pre-agreed arrangements for a given category of emergency and sets out the provisions for linking the "National Emergency Plan for Nuclear Accidents" (NEPNA) with the Major Emergency Plans of the Principal Response Agencies.

Upgrade of the National Radiation Monitoring Network

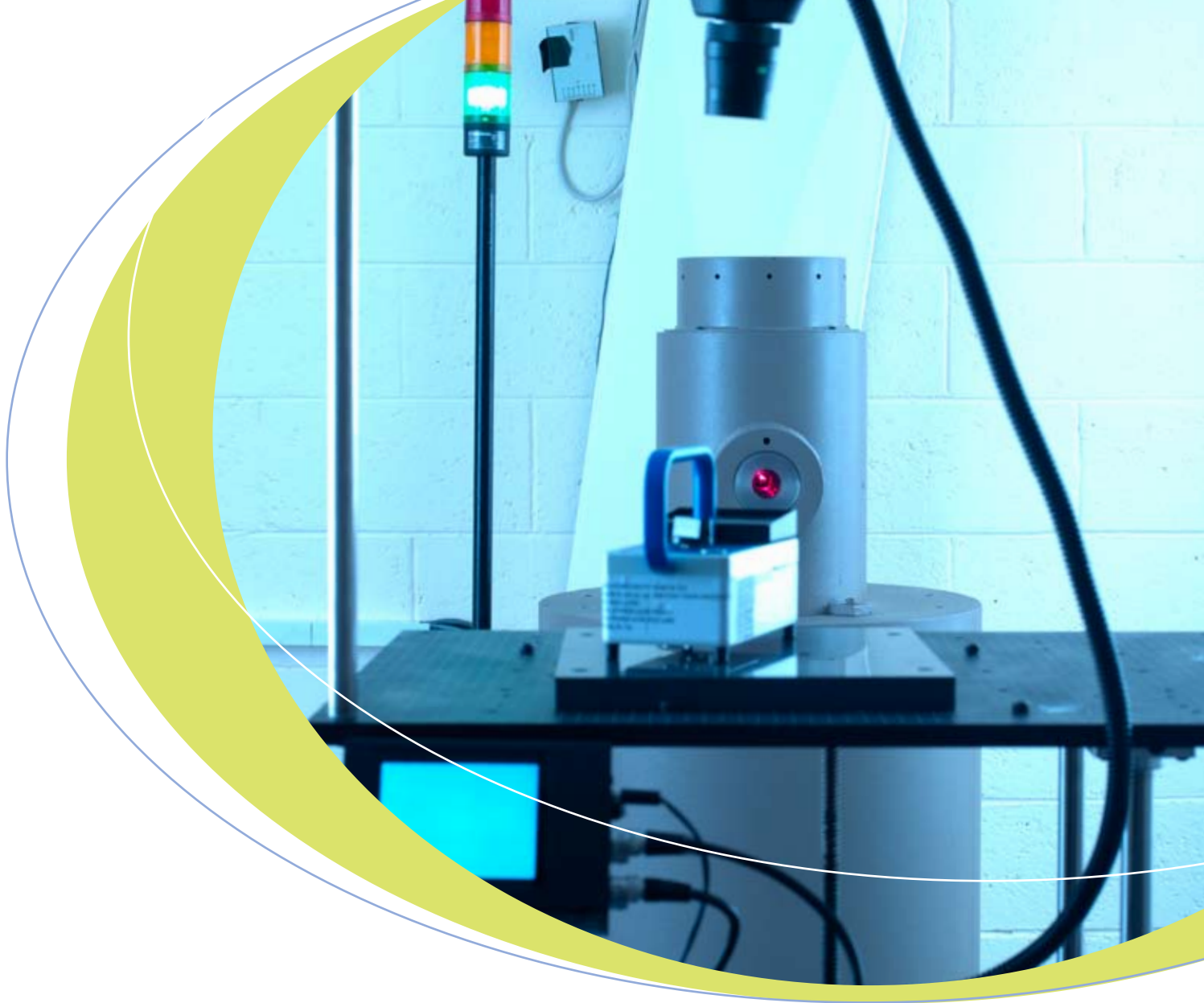
As part of the upgrade of the National Radiation Monitoring Network, the RPII updated and expanded its air sampling network in 2007. The sampling systems continuously sample air at locations around the country. Five of the systems on the east and south coasts include on-line detectors that provide continuous measurements of radioactivity in the air. The radioactivity concentrations measured are automatically transmitted to a central computer at the RPII. Elevated radiation readings or technical problems trigger automatic alarms.

The remaining seven systems sample the air and the filter paper is then returned to the RPII's laboratory for radioactivity analysis. This method allows a more precise measurement to be made. The air sampling network measurements complement those from the recently upgraded gamma dose rate network and, together, enhance the RPII's ability to detect and respond to elevated levels of radioactivity in the environment.

Emergency Exercises

In addition to its programme of internal emergency exercises to maintain staff expertise, the RPII participated in both national and international emergency exercises. A major exercise of the NEPNA took place over a two-day period in November. The exercise was designed to consider protective actions to be applied in the agricultural and food sector following deposition of radioactivity from a nuclear accident abroad. This exercise followed-on from the INEX-3 exercise in 2005 and involved over 40 participants including NEPNA's Emergency Response Co-ordination Committee and technical experts from the RPII, Department of Agriculture, Fisheries and Food and the Food Safety Authority of Ireland. One of the main objectives of the exercise was to test the applicability to Ireland of a new European Handbook on contaminated food production systems.

The RPII participated in a number of international emergency exercises organised by the IAEA and the EC. Of particular note was the EC's ECURIE Level 3 exercise in December for which Ireland acted as the 'accident country'. The exercise scenario featured an accident on a nuclear submarine off the south coast of Ireland with a resulting release of radioactivity to the air. This 'release' resulted in increased levels of radioactivity on the east coast of Ireland resulting in elevated radiation levels at stations in the National Radiation Monitoring Network.



During the exercise, messages simulating the initial notification of these elevated radiation levels and updates on actions taken were sent by the RPII to the European Commission in Luxembourg. Once approved by the EC, these messages were forwarded to all EU Member States. The exercise lasted for eight hours and used real weather forecast data together with simulated radiation measurements generated using the RPII's nuclear decision support system ARGOS. The simulated measurement results were exchanged with other European countries via the EURDEP data exchange system. Overall, the exercise was extremely successful and contributed to an enhanced level of emergency preparedness at the international level.

During the year, the RPII also participated in an emergency notification exercise with the UK under the bilateral agreement between Ireland and the UK on the early notification of a nuclear accident. These exercises take place on an annual basis and ensure that the procedures for notification continue to work effectively.

International Activities

The RPII maintains an active involvement in the work of key international organisations that develop standards and guidance on nuclear safety and the uses of ionising radiation. These organisations include the European Union, the International Atomic Energy Agency (IAEA) and the Nuclear Energy Agency (NEA) of the Organisation for Economic Co-operation and Development and the World Health Organisation (WHO).

The RPII represents Ireland on over 20 international scientific and technical committees and working groups. Dr Stephen Fennell continues to chair the European Radiation Protection Authorities Network (ERPAN) and Dr Ciara McMahon chairs the Expert Group on Recovery, Agriculture and Food of the NEA Working Party on Nuclear Emergency Management. Jarlath Duffy's chairmanship of the IAEA's Transport Advisory Committee (TRANSSEC) and David Fenton's chairmanship of the World Health Organisation's Working Group on Radon Exposure Guidelines came to an end in December 2007. RPII Chief Executive Dr Ann McGarry continues as a member of Committee 4 of the International Commission on Radiological Protection (ICRP) and also chaired the 50th Anniversary Conference of the NEA Committee on Radiation Protection and Public Health.

During 2007, the European Commission established a High Level Group (HLG) on Nuclear Safety and Waste Management. The HLG brings together the heads of regulatory authorities in the 27 Member States with a view to developing common European standards to improve nuclear safety. Ireland is represented on the HLG by Dr Ann McGarry, CEO and Dr. Tony Colgan, Director of Advisory Services. Dr McGarry has been elected vice-chairman of the HLG and also chairman of the Working Group entitled "Improvements in Transparency Arrangements". The RPII is also represented on the Working Group "Improvements in Nuclear Safety".

The RPII maintains close contact with the two UK nuclear regulators, namely the Nuclear Installations Inspectorate of the Health and Safety Executive and the Environment Agency of England and Wales. During 2007, the Memorandum of Understanding with the French nuclear regulator, the Autorité de Sûreté Nucléaire (ASN), led to an exchange of views on issues of mutual interest including radon and medical radiation exposures.

Through its Technical Co-operation Programme, the IAEA develops radiation protection standards and radioactivity measurement programmes in its Member States. The RPII contributes to this programme by providing experts to develop advisory literature, run training courses and provide guidance on radiation protection matters. During 2007, this involved working visits to Ghana, Kenya, Mauritius, Qatar and Uganda.



Safety of Nuclear Facilities Abroad

The RPII has a statutory responsibility to monitor developments in relation to nuclear safety and to advise Government in that regard. The RPII exercises these functions through Memoranda of Understanding with nuclear regulators and visits to nuclear facilities abroad. The RPII also reviews the technical and scientific literature so that it is fully briefed on all international issues and their potential implications for Ireland.

Nuclear Safety in the UK

The RPII continues to closely monitor developments at Sellafield and other UK nuclear sites. At Sellafield this monitoring is focused on progress in emptying the Highly Active Storage Tanks (HASTs) which represent the major hazard at the site. RPII also monitors progress in the vitrification of highly radioactive liquid waste and the decommissioning of redundant facilities, as well as the plans for the reopening of the THORP plant which was closed following the detection of a major leak in 2005. In regard to the THORP plant, although the Nuclear Installations Inspectorate (NII) gave consent to reopen it in January 2007, THORP is still encountering technical difficulties and, at the time of writing, has not yet recommenced full production.

As well as the problems with THORP, the continued unavailability of some of the evaporators meant that the planned schedule for reprocessing of Magnox spent fuel was delayed. This work has now been extended from the original completion date of 2012 to 2016 or beyond. Interruptions to the reprocessing of Magnox fuel are of concern in that the fuel already at Sellafield is stored under water and corrodes with time.

Highly radioactive liquid waste generated from reprocessing is stored in the HASTs and subsequently incorporated into glass blocks in the Waste Vitrification Plant. The NII specifies strict limits on the amount of liquid waste that can be stored in the HASTs at any one time in the conditions attached to the Sellafield Site licence and requires the total amount to be reduced to a "buffer" volume of 200 m³ by 2015. The low throughput of spent fuel during 2007 resulted in less liquid waste being generated than in previous years which in turn allowed the volume of liquid radioactive waste stored in the HASTs to be reduced at a faster rate than was required by the NII. The NII has now issued a new specification which "locks in" the unplanned reductions that took place during the year due to problems with both THORP and Magnox reprocessing.

While the reduction in the volume of liquid waste during 2007 exceeded that required by the NII specification, it was not as large as it might have been due to ongoing problems with the vitrification process. Continued high performance of the three vitrification lines is essential if the revised reprocessing targets are to be met.

The RPII is kept fully informed by the UK nuclear regulators on progress in reducing the volume of liquid waste stored in the HASTs.

The RPII also continues to monitor the development of plans in the UK to build new nuclear power plants to replace those that are due to close. The RPII is following closely the pre-licensing procedures being applied that will decide which reactor designs are potentially licensable in the UK.

Through its Memorandum of Understanding with the NII, a number of incidents at Sellafield and other UK nuclear sites were brought to the attention of the RPII during the course of the year. None of these had offsite consequences and, therefore, had no direct implications for Ireland. None of them was classified as higher than level 1 on the International Nuclear Event Scale (INES). A level 1 incident is classified as an anomaly on this scale.

The RPII was also informed of a number of nuclear incidents in other countries through the IAEA's Nuclear Events Web Based System (NEWS). None of these had offsite consequences and, therefore, had no direct implications for Ireland.

Visit to Flamanville Nuclear Power Plant and the La Hague Reprocessing Plant

In August 2007, as part of an MoU with the French nuclear regulatory authority ASN, the RPII visited the Flamanville nuclear power plant and La Hague reprocessing plant in Normandy. The visit also included discussions with ASN on the regulation of nuclear activities in France. As in the case of the visit to Wylfa nuclear power plant in 2006, the purpose of the RPII visits was to ensure that the RPII is in a position to provide accurate, comprehensive, and up-to-date advice to Government on a wide range of nuclear issues.

The visit to Flamanville included a tour of the existing reactors as well as the site where one of the two new European Pressurized Reactors (EPRs) is currently under construction and due to go on line in 2012. The other EPR presently under construction is in Finland. The EPR is also one of the reactor designs being considered for the UK. For this reason the visit to the site, which also included a discussion on the EPR's safety features, was particularly useful.

The La Hague reprocessing plant reprocesses spent fuel from France's nuclear power plants, as well as from abroad. The La Hague plant differs from Sellafield in that there is no Magnox fuel reprocessing at La Hague and there is little storage of liquid high level radioactive waste (HLW). Once generated, the HLW is incorporated into glass (a process known as vitrification) and stored. The quantity of legacy wastes from the decommissioning of redundant facilities is also much smaller than at Sellafield. The visit included the spent fuel storage ponds and some waste treatment facilities, in particular the vitrification plant.

Corporate Services

Introduction

Corporate Services encompasses all of the support services required to run the organisation efficiently and effectively and to ensure compliance with corporate governance rules and guidelines. Notable achievements for the year are listed below under the various section headings.

Corporate Governance

The Code of Practice for the Governance of State Bodies sets out the governance requirements for all commercial and non-commercial state bodies, including the RPII. During 2007, the RPII continued to implement the requirements of the Code and completed the implementation of the recommendations of the review of the performance of the Board which was undertaken in 2006.

At the start of the year, an annual work-plan was adopted by the Board focusing on policy, strategy, risk and key operational issues. This included oversight of the implementation of the 2007 Business Plan developed in line with the 2005-2007 Strategy Statement, the management of risk in line with the risk management policy, the annual review of the effectiveness of the system of internal financial control and the management of the performance of the Chief Executive.

A very significant development during the year was the approval by the Board of a comprehensive Corporate Governance Manual covering all aspects of the governance of the RPII including the conduct of Board business, strategic and business planning, operational processes, risk management, audit and reporting, financial management and control and standards of behaviour. The introduction of the manual was supported by a programme of training for Board members, audit committee members and senior staff of the RPII.

In September, the Board commenced the preparation of a new Strategic Plan for the RPII covering the period 2008-2010. This process involved a comprehensive review of the implementation of the previous strategy, a dedicated Board strategy session and surveys of key stakeholders and staff, as well as a number of workshops. The new Strategic Plan is available on the RPII website.

Finance

The RPII's income in 2007 was €6.816m made up of a grant of €3.571m for current purposes, a grant receivable of €1.416m for pension purposes as required under FRS 17, and earnings of €1.282m from licence charges and dosimetry, product certification, radon measurement and other services and €0.547 of capital grant amortised in the year.

The RPII also received a capital grant of €0.400m for the upgrading of its monitoring equipment. Expenditure for the year exceeded income by €0.107m.

The RPII complies with all procurement regulations and it has procedures in place to ensure that all invoices received are paid within the time limits specified on the invoices or the statutory time limit if no period is specified.

Financial Services

Work continued during 2007 towards streamlining and modernising the financial management arrangements in the RPII. Tenders were invited from suitable companies to provide a new financial software system for the RPII. The contract was awarded towards the year end with a view to implementing the new system in 2008.

Prompt Payment of Accounts

The Prompt Payment of Accounts Act came into operation on 2nd January 1998. The RPII comes under the remit of the Act. The following is a report on the payment practices of the RPII for the year ended 31st December 2007.

It is the policy of the RPII to ensure that all invoices are paid promptly. The organisation's system of internal control includes accounting and computer controls to ensure the identification of invoices and contracts for payment within the prescribed timeframe of the Act. The accounts department produces a report that identifies unpaid outstanding invoices and this report is reviewed regularly.

There were five late payments with a value in excess of €317 during 2007 and these exceeded the due payment date by an average of 40 days. The total value of these late payments was €10,284.

Human Resources

During the year, two key information resources for staff were completed – the Employee Handbook, and the HR intranet site. These two tools provide staff with up-to-date information and a range of services related to their employment conditions.

A Core Skills Programme for all staff was developed which encompasses the basic training that all staff should be offered on a routine basis. The programme includes a range of IT skills, health and safety training, customer services and team working skills. Centralised management of this Core Skills Programme by HR further improves the efficiency and cost effectiveness of training delivery.

A Staff Attitudinal Climate Survey was undertaken in 2007 as a follow up to a similar survey in 2004 that was carried out just prior to the introduction of a Performance Management and Development System (PMDS) in the RPII. The findings of the 2007 survey highlighted the significant positive impact achieved by PMDS and the general upward curve in virtually all aspects of management and HR practice covered by the survey, when compared to the previous survey in 2004.

The survey also found a maximum score of 100% of respondents believing that the atmosphere in the RPII is friendly and cooperative, with over 60% believing this to exceed their requirements or to be exceptional.

Staff

Efforts to improve efficiency and effectiveness have been thwarted for some time by insufficient staff resources, particularly in the administrative area. Lack of administrative staff means that scientific staff are required to do significant amounts of administrative tasks which represents a poor use of the scientific resource. A detailed submission made to the DEHLG in 2006 seeking approval for additional staff produced a successful outcome in March 2008. In order to overcome periods of peak administrative activity, with the full cooperation of the staff, a number of agency staff were engaged on a short-term basis throughout 2007.

Equality

The RPII is committed to a policy of equal opportunity in all aspects of its activities. Particular attention is given to equality in recruitment, conditions of employment and access to promotion, training and career development. The RPII recognises that flexible working arrangements are an important component of equality policies and operates such schemes as flexitime, study leave, career breaks and work-sharing. During 2007, both the Work-Sharing and the Flexible Working Hours Schemes were reviewed and modified to ensure greater options for staff while preserving business effectiveness. Currently, 13 staff avail of the work-sharing option enabling them to achieve their own personal work-life balance. Work has also continued to ensure compliance with the Disability Act particularly in the areas of access, including the redesign of the RPII website and a review of physical access to the building.

Partnership

Workplace partnership continued in the RPII during 2007 with the Partnership Committee meeting on ten occasions. The aim of Partnership is to improve the work environment, productivity and service excellence by providing a forum for sharing information, consultation and problem solving. The issues dealt with during 2007 included:

- the Employee Handbook;
- the action plan for the performance verification group under Towards 2016;
- the integration of the PMDS and Human Resources systems;
- a review of the terms of reference for Partnership and training for committee members;
- a policy on science-based issues;
- environmental sustainability;
- the operation of the system for staff working outside standard hours;
- eWorking, and;
- a review of flexible working hours.

Towards 2016

Two reports setting out the RPII's progress during 2007, in relation to its Action Plan under the National Agreement "Towards 2016", were submitted to the DEHLG, in March and December. Both reports were approved in full by the Department, and acknowledged the significant progress that the RPII has made, across a range of issues, in implementing the Government's modernisation agenda.

Health and Safety

During 2007, there was an increased emphasis on office safety and on safety training. A core training programme was developed which provides for the routine delivery of health and safety training for all staff. A new office safety training course was developed in-house for delivery to all staff. There were no significant health and safety issues during the year.

Energy Efficiency

A number of new initiatives aimed at saving energy were considered during 2007. The measure with the most significant impact was the 1 in 3 reduction in the number of fluorescent tubes used in the offices. Estimated energy savings by this measure alone are equivalent to just under three tonnes of carbon dioxide per annum.

A new photocopier/printer was installed in early 2007 and was set up in such a way as to promote efficiencies in paper consumption.

Quality Customer Services

The RPII is committed to the provision of a high quality of service delivery to all of its customers across the full range of its activities. To ensure that this commitment is maintained across the organisation, a customer service training course was developed and training provided to all staff.

The RPII's Quality Customer Service (QCS) working group carried out a review to assess progress on the implementation of the actions identified in the QCS Action Plan. In October, the new Customer Service Charter was distributed to all customers. The Charter was also produced in poster format and placed at key points throughout the offices.

The term of office of the current QCS working group ended in July and a new group was appointed. This group began work on developing a customer service satisfaction survey which will provide a benchmark for future improvements in performance. It is intended that all customers will be surveyed in early 2008.

Non-Ionising Radiation

In March 2006, the Government approved a Memorandum tabled by the Minister for Communications, Marine and Natural Resources setting out how the Government might address the recommendations of the Interdepartmental Committee on the Health Effects of Electromagnetic Fields (IDC). The IDC's recommendations were in turn based on those of an Expert Advisory Group on the health effects of electromagnetic fields established by the IDC. As part of its decision, the Government agreed that the RPII's mandate should be extended to include aspects of non-ionising radiation (NIR) and that RPII should be properly resourced to carry out this work. The new mandate for the RPII is to be set out in a Memorandum which is to be brought to Government in due course by the Minister for the Environment, Heritage and Local Government.

As it currently has no expertise in relation to NIR, in early 2007 the RPII Board established a Task Group comprising external expertise, including international NIR experts, and RPII staff to consider the recommendations of the IDC and the Expert Advisory Group and to advise it on the NIR mandate for the RPII and the corresponding resource requirements.

The report of the Task Group was completed towards the end of the year. It sets out the mandate in relation to NIR that the Task Group considers is appropriate for the RPII, it makes recommendations as to how the mandate should be delivered by RPII, including an

implementation plan covering the first three years of operation and it details the resources required to implement the mandate. The report was approved by the Board and forwarded to the Minister and the DEHLG for consideration in their development of the second Memorandum to be brought to Government.

Information Communication Technologies

The RPII's Environmental Laboratory, Radon and Dosimetry Services heavily rely on bespoke database systems. In 2007, a project was initiated to develop these database systems into a modern, fully supported platform, to ensure their continued effectiveness into the future. Migration of the environmental laboratory and radon systems to the platform was achieved in 2007 and the dosimetry system will follow in 2008.

A number of hardware upgrades were carried out in 2007 with emphasis on disaster recovery. The RPII's central servers were upgraded and procedures put in place to improve the speed at which they can be recovered in the event of a failure. New servers, with increased disaster recovery facilities, were also introduced to support the RPII's National Radiation Monitoring Network. In line with the routine upgrade programme, 25% of desktop hardware was replaced.

Records Management

The records management system, launched in 2005, continues to be reviewed and developed on an on-going basis. An audit of the system was carried out early in the year by external experts. The outcome highlighted ways in which the system could be enhanced, particularly in relation to confidential and vital records. Some minor changes were made to the record management policy and procedures and a refresher training programme for all staff was developed.

Library

Cost effectiveness and efficiency of service were the key focus points for 2007. This included close monitoring of the press cuttings service and a review of subscriptions and library stock to ensure that expenditure is in line with the needs of RPII staff.

Communications

A strategic priority of the RPII is to provide information and advice to the Irish public about the harmful effects of exposure to ionising radiation. A range of communication activities was undertaken during the year to meet this priority and to promote the work of the RPII through the media, events, advertising, the RPII website, Freefone Radon advice and a number of publications.

The media play a significant role in disseminating information and in reporting on radiological protection issues of public concern. Press releases were issued to coincide with the RPII's major events and local radio advertising was used to raise awareness of radon in High Radon Areas. Media interest continued during the year with staff participating in approximately 30 television and radio programmes throughout the country. This resulted in widespread coverage of activities, particularly in relation to radon gas.

In June, over 200 delegates – mostly medical physicists – attended a seminar, hosted by the RPII in collaboration with the Association of Physical Scientists in Medicine, on the new ICRP recommendations.

The RPII's website (www.rpii.ie) is a key resource for information on the organisation and its activities and was accessed, on average, by over 3800 unique visitors each month during the year. Over 6700 unique visitors were recorded in September after the RPII issued a press release on the extreme radon value found in a workplace in Mallow, Co. Cork. Popular areas of the site include information on radon, publications, press releases, live gamma dose rate measurements and emergency planning information. During the year, work began on a website redevelopment project which commenced with a strategic review of the RPII's website. The new website will provide a channel for better communications with users and is expected to be complete in 2008.

Recognising the importance of communications in the RPII's advisory role, a communications audit was carried out during the year to examine the internal mechanisms and processes that are in place for the generation and delivery of external communications. The audit made a number of recommendations all of which were implemented, except those requiring additional staff resources.

In October, the RPII invited tenders, through the Government's eTenders website, from suitably qualified public relations consultants to work with the RPII for the period 2008 to 2012. Following an evaluation process, including interview, the contract was awarded in December.

The RPII's scientific experts regularly participated in conferences and seminars both nationally and internationally and provided speakers for public meetings and for specialist courses to a wide spectrum of groups and various other professional bodies.

Publications

The information pamphlets on radon in homes and radon in workplaces were revised and reviewed to ensure they were up to date and to ensure they satisfied "plain English" requirements. In addition, a new information pamphlet on Radon in Drinking Water was published and revised guidance notes on radon exposure in underground workplaces were published. All RPII reports are made available free of charge on www.rpii.ie.

RPII Reports

Radioactivity monitoring of the Irish environment 2003-2005. RPII-07/01.

Visit of the Radiological Protection Institute of Ireland to the Wylfa nuclear power plant. RPII-07/02.

Radioactivity monitoring of the Irish environment 2006. RPII-07/03.

Radon in drinking water (information pamphlet).

Radon in homes (information pamphlet – revised).

Radon in workplaces (information pamphlet – revised).

Guidance notes

Radon in Underground Workplaces – Guidance Notes for Employers.

Scientific Papers

Colgan, P.A., Synnott, H., Fenton, D. 2007 Individual and collective doses from cosmic radiation in Ireland. *Radiation Protection Dosimetry*, 123 (4), p. 426-434.

Jones, D.G., Kershaw, P.J., McMahon, C.A. *, Milodowski, A.E., Murray, M. *, Hunt, G.J. 2007 Changing patterns of radionuclide distribution in Irish Sea subtidal sediments. *Journal of Environmental Radioactivity*, 96, (1-3), July-September 2007, p. 63-74.

Organo, C. *, Murphy, P. 2007 The Castleisland radon survey – follow-up to the discovery of a house with extremely high radon concentrations in County Kerry (SW Ireland). *Journal of Radiological Protection*, 27, June 2007. p. 275-285.

Synnott, H., Colgan, P.A., Hanley, O. Fenton, D. 2007 The effectiveness of radon remediation in Irish schools. *Health Physics*, 92(1), p. 50-57.

General Articles

Colgan, P.A. Encouragement and enforcement – has the time come to legislate? Presented at: Radon risk – time for more effective action. IBC Global Conferences, London, 29th and 30th January 2007. www.ibcglobal.com

Duffy, J., Madden, J. Analysis of a radiological incident (case N° 22): Retrieval of a fire damaged gauge containing a radioactive source in Ireland. *European Alara Newsletter*, 21, October 2007. p. 6.

Fenton, D. Radon gas – a noble gas that's not so noble. *IMPACT News*, October 2007.

* RPII staff in conjunction with other authors.

Members of the Board

The Board met eight times during the year. The number of meetings attended by each Board member is shown below, the number in brackets indicating the number of meetings the member in question was eligible to attend. Also shown, in the case of the six members who were nominated for appointment to the Board by particular organisations, is the name of the respective nominating organisations.

Chairman

Professor Eugene Kennedy 8 (8)

Ms Fionnuala Barker (*Appointed 21st May 2007*) 4 (5)

Dr Lesley Malone (*Term expired 17th April 2007*)
Irish Nuclear Medicine Association 3 (3)

Mr Gregory Burke (*Term expired 17th April 2007*)
Institute of Food Science and Technology of Ireland 3 (3)

Professor Kieran Byrne (*Resigned 31st August 2007*) 0 (5)

Dr Patrick Connellan
Dental Council 6 (8)

Mr James Fitzmaurice
(*Term expired 17 April, re-appointed 23rd September 2007*) 5 (5)

Mr Patrick Gilligan
Association of Physical Scientists in Medicine 8 (8)

Dr Michael Hurley
Medical Council 6 (8)

Dr Kevin Kelleher (*Appointed 24th September 2007*)
Health Service Executive 2 (2)

Dr Niall McEniff (*Appointed 26th March 2007*)
Faculty of Radiologists, Royal College of Surgeons Ireland 3 (6)

Ms Darina Muckian 8 (8)

Ms Adi Roche 6 (8)

Mr Francis J Turvey 7 (8)

The total figure for Board remuneration and expenses in 2007 was €89,760.

Membership of the Board's Audit Committee:

Chairman: **Dr Patrick Connellan**

Mr James Fitzmaurice

Mr Patrick Gilligan

Term of office: 8th November 2006 to 7th November 2009.



1 **Prof Eugene Kennedy** *Chairman*

Appointed as Board Chairman in 2006, Prof Kennedy has been Professor of Physics at Dublin City University (DCU) for the last 20 years and is currently Vice-President for Research. He was elected Fellow of the Institute of Physics in 1987 and member of the Royal Irish Academy in 2004. He is internationally known for his research in the field of atomic and plasma physics, has published extensively and has served on many national and international boards.

2 **Ms Fionnuala Barker**

Appointed to the board in 2007, Ms. Barker is a Principal Physicist in St. Luke's Hospital, Dublin providing medical physics expertise in the areas of nuclear medicine and radiation protection. She is a past Secretary of the Irish Nuclear Medicine Association and a past Chair of the Association of Physical Scientists in Medicine.

3 **Dr Patrick Connellan**

Appointed to the Board in 1992, Dr Connellan is Chairman of the RPII's Audit Committee. He is a former Board member of the Postgraduate Medical and Dental Board and is currently Chairman, Continuing Dental Education Accreditation Committee of Postgraduate Medical and Dental Board. He has recently been awarded a Fellowship of the International College of Dentists.



4 James Fitzmaurice

Appointed to the Board in 2002, Mr Fitzmaurice is Managing Director of the Bradan Group that publishes local papers in Wicklow, Kildare and Carlow and the Public Sector Times. He is former Chairman of ISME, President of Bray Chamber of Commerce and Chairman of Irish e-Government Awards and Centres of Excellence. He has served on a number of government small business task forces and committees and is currently a member of the Wicklow County Council's Strategic Policy Committee on Environment and Waste. He is Chairman of the RPII's Communications Advisory Committee.

5 Patrick Gilligan

Appointed to the Board in 2006, Mr Gilligan is a Principal Physicist providing radiation protection services and medical physics expertise to the Mater Private Hospital. He is a past Chairman of the Association of Physical Sciences in Medicine and is a member of the Medical Council's Medical Ionising Radiation Committee.

6 Dr Michael Hurley

Appointed to the Board in 2005, Dr Hurley is a Consultant Radiologist in Cork University Hospital. He is a Board member of the Medical Council of Ireland and Chairman of the Medical Council's Medical Ionising Radiation Committee.

Dr Kevin Kelleher (not pictured)

Appointed to the Board in 2007, Dr Kelleher is Assistant National Director Population Health – Health Protection, managing the public health services for the HSE. He has a strong interest in environmental impacts on human health.

7 Dr Niall McEniff

Appointed to the Board in 2007, Dr McEniff is a board member of the Faculty of Radiologists in the Royal College of Surgeons in Ireland. He was appointed a consultant radiologist in St. James's Hospital in 1997. He has a specialist interest in interventional radiology.

8 Darina Muckian

Appointed to the Board in 1997, Ms Muckian is a Physics graduate with more than ten years engineering experience in electronics and software industries and has campaigned on environmental issues.

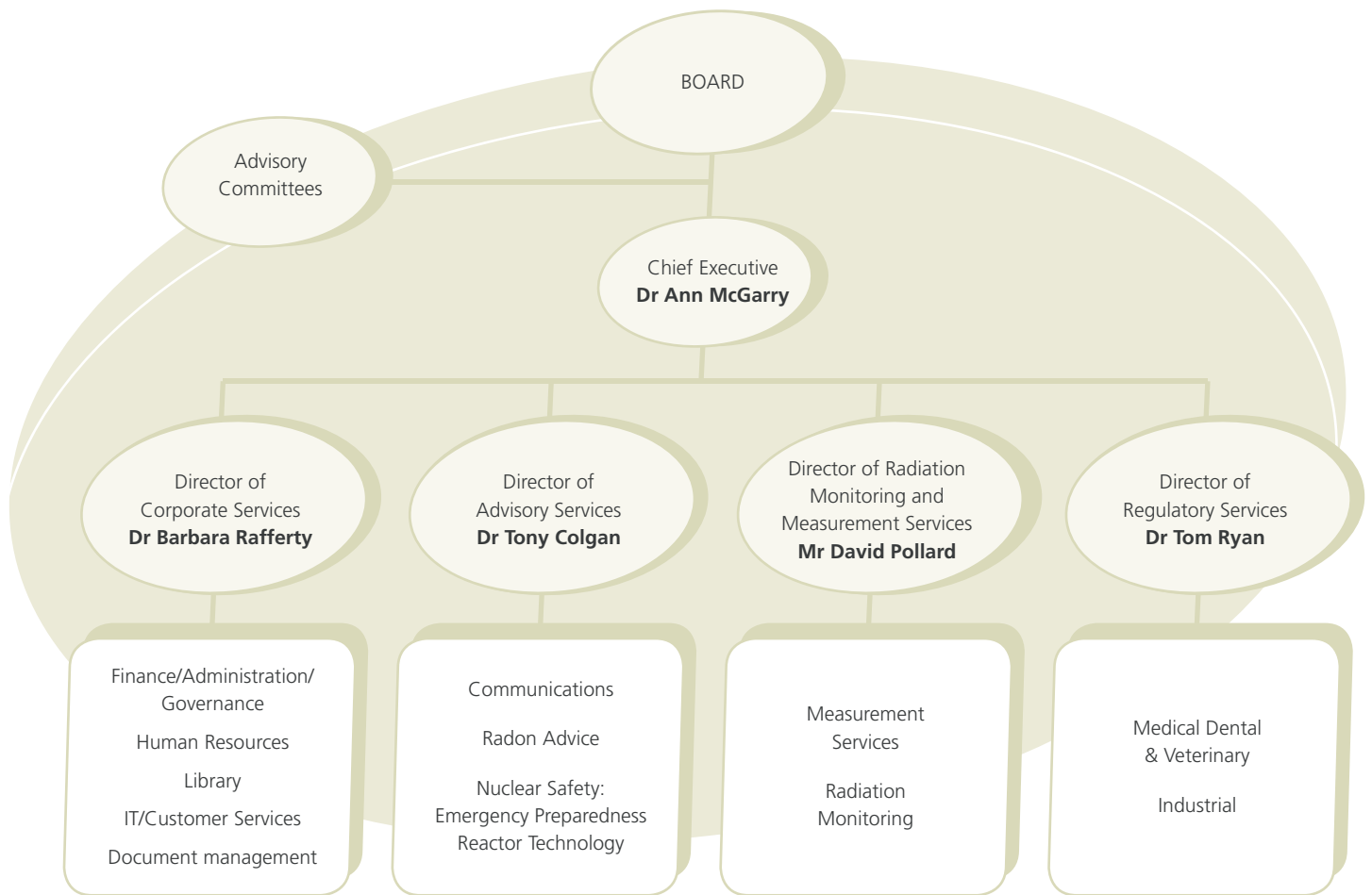
9 Adi Roche

Appointed to the Board in 1997, Ms Roche is the Founder of Chernobyl Children's Project International and has worked for the past 16 years to provide humanitarian aid to the children of Belarus, Western Russia and the Ukraine. Ms Roche is the executive Director of the Chernobyl Children's Project.

10 Francis J. Turvey

Appointed to the board in 2001, Mr Turvey is a former assistant Chief Executive Officer of the RPII and since retirement has worked as a consulting engineer in the fields of radiological protection and nuclear safety. He is a Chartered Engineer and Fellow of several professional organisations including the Irish Academy of Engineering, the Institution of Engineers of Ireland, the Institute of Nuclear Engineers and the Institute of Physics. He also holds a UK Board of Trade Certificate of Service as First Class Engineer in the Merchant Navy.

Staff Structure



Dr Ann McGarry
Chief Executive



Mr David Pollard
Director of Radiation
Monitoring and
Measurement Services



Dr Barbara Rafferty
Director of
Corporate Services



Dr Tony Colgan
Director of Advisory Services



Dr Tom Ryan
Director of
Regulatory Services

Advisory Committees

Environmental Radiation Advisory Committee

This Committee provides advice to the Board on radioactivity in the environment.

Chairman Mr Gregory Burke

Dr Tony Colgan

Mr David Fenton

Mr Dermot Howett

Prof Ian R. McAulay

Dr Ann McGarry

Prof James P. McLaughlin

Prof Peter I. Mitchell

Scientific Secretary Ms Stephanie Long

Ms Darina Muckian

Dr Geraldine O'Reilly

Mr David Pollard

Dr Barbara Rafferty

Prof William Reville

Ms Adi Roche

Prof Philip Walton

Medical Radiation Advisory Committee

This Committee advises the Board on the uses of ionising radiation in medicine and dentistry.

Chairman Dr George Duffy

Ms Fionnuala Barker

Dr David Clarke

Ms Mary Coffey

Dr Stephen Fennell

Mr David Fenton

Mr Christopher Hone

Mr Dermot Howett

Dr Lynn Johnson

Dr Pat Kenny

Scientific Secretary Ms Tanya Kenny

Dr Brendan McClean

Dr Mark McEntee

Dr Ann McGarry

Dr Lesley Malone

Dr Michael Moriarty

Dr Geraldine O'Reilly

Prof Wil van der Putten

Dr Tom Ryan

Dr Stephen Skehan

Communications Advisory Committee

This Committee provides advice relating to public relations.

Chairman Mr James Fitzmaurice

Ms Fionnuala Barker

Dr Tony Colgan

Ms Marie Kelly

Dr Ann McGarry

The RPII Team of 2007

The RPII Team of 2007

Isabella Bolger	Emily Clarke	Olivia Cluskey	Tony Colgan
Ashley Curran	Lorraine Currivan	Noeleen Cunningham	David Dawson
Lucy Doody	Jarlath Duffy	Mary Fegan	Stephen Fennell
David Fenton	Paul Fitzgerald	Nancy French	Teresa Grant
Glenda Griffin	Suzanne Griffiths	Olwyn Hanley	Eileen Hayden
Christopher Hone	Dermot Howett	Kevin Kelleher	Marie Kelly
Tanya Kenny	Stephanie Long	Pamela Lennon	Jack Madden
Ciara Maguire	Leo Mc Kittrick	Ciara Mc Mahon	Ann McGarry
Paul McGinnity	Alison McIntyre	Roisin McNamee	Ailish Murphy
Michael Murray	Graham Mulvany	Mairin O'Colmain	John O'Grady
Catherine Organo	David Pollard	Sheila Powell	Barbara Rafferty
Ellen Rice	Tom Ryan	Catherine Scully	Killian Smith
Veronica Smith	Caroline Somers	Stephen Somerville	David Spain
Hugh Synnott	Rose Timmins	Sharon Wade	Jennie Wong

Financial Statements

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Report of the Comptroller and Auditor General

for presentation to the Houses of the Oireachtas

I have audited the financial statements of the Radiological Protection Institute of Ireland for the year ended 31st December 2007 under the Radiological Protection Act, 1991.

The financial statements, which have been prepared under the accounting policies set out therein, comprise the Statement of Accounting Policies, the Income and Expenditure Account, the Statement of Total Recognised Gains and Losses, the Balance Sheet and the related notes.

Respective Responsibilities of the Institute and the Comptroller and Auditor General

The Institute is responsible for preparing the financial statements in accordance with the Radiological Protection Act, 1991, and for ensuring the regularity of transactions. The Institute prepares the financial statements in accordance with Generally Accepted Accounting Practice in Ireland. The accounting responsibilities of the Members of the Institute are set out in the Statement of Responsibilities of the Institute.

My responsibility is to audit the financial statements in accordance with relevant legal and regulatory requirements and International Standards on Auditing (UK and Ireland).

I report my opinion as to whether the financial statements give a true and fair view, in accordance with Generally Accepted Accounting Practice in Ireland. I also report whether in my opinion proper books of account have been kept. In addition, I state whether the financial statements are in agreement with the books of account.

I report any material instance where moneys have not been applied for the purposes intended or where the transactions do not conform to the authorities governing them.

I also report if I have not obtained all the information and explanations necessary for the purposes of my audit.

I review whether the Statement on Internal Financial Control reflects the Institute's compliance with Code of Practice for the Governance of State Bodies and report any material instance where it does not do so, or if the statement is misleading or inconsistent with other information of which I am aware from my audit of the financial statements. I am not required to consider whether the Statement on Internal Financial Control Covers all financial risks and controls, or to form an opinion on the effectiveness of the risk and control procedures.

I read other information contained in the Annual Report, and consider whether it is consistent with the audited financial statements. I consider the implications for my report if I become aware of any apparent misstatements or material inconsistencies with the financial statements.

Basis of Audit Opinion

In the exercise of my function as Comptroller and Auditor General, I conducted my audit of the financial statements in accordance with International Standards on Auditing (UK and Ireland) issued by the Auditing Practices Board and by reference to the special considerations which attach to State bodies in relation to their management and operation.

An audit includes examination, on a test basis, of evidence relevant to the amounts and disclosures and regularity of the financial transactions included in the financial statements. It also includes an assessment of the significant estimates and judgements made in the preparation of the financial statements, and of whether the accounting policies are appropriate to the Institute's circumstances, consistently applied and adequately disclosed.

I planned and performed my audit so as to obtain all the information and explanations that I considered necessary in order to provide me with sufficient evidence to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or other irregularity or error. In forming my opinion I also evaluated the overall adequacy of the presentation of information in the financial statements.

Opinion

In my opinion, the financial statements give a true and fair view, in accordance with Generally Accepted Accounting Practice in Ireland, of the state of the Institute's affairs at 31st December 2007 and of its income and expenditure for the year then ended.

In my opinion, proper books of account have been kept by the Institute. The financial statements are in agreement with books of account.



Gerard Smith

For and on behalf of the Comptroller and Auditor General

11th August 2008

Statement on the System of Internal Financial Control

On behalf of the Board of the Radiological Protection Institute of Ireland, I acknowledge our responsibility for ensuring that an effective system of internal financial control is maintained and operated.

The system can only provide reasonable and not absolute assurance that assets are safeguarded, transactions authorised and properly recorded, and that material errors or irregularities are either prevented or would be detected in a timely period.

Key Control Procedures

The Board has taken steps to ensure an appropriate control environment by

- clearly defining management responsibilities;
- establishing formal procedures for reporting significant control failures and ensuring appropriate corrective action.

The Board established formal processes to identify and evaluate business risks by

- identifying the nature, extent and financial implications of risks facing the body including the extent and categories which it regards as acceptable;
- assessing the likelihood of identified risks occurring;
- assessing the body's ability to manage and mitigate the risks that do occur.

The system of internal financial control is based on a framework of regular management information, administrative procedures including segregation of duties, and a system of delegation and accountability. In particular it includes:

- a comprehensive budgeting system with an annual budget which is reviewed and agreed by the Board;
- regular reviews by the Board of bi-monthly management accounts and annual financial reports which indicate financial performance against forecasts;
- clearly defined capital investment control guidelines.

The Board's monitoring and review of the effectiveness of the system of internal financial control is informed by the work of the internal auditor, the Audit Committee which oversees the work of the internal auditor, the executive managers within the Radiological Protection Institute of Ireland who have responsibility for the development and maintenance of the financial control framework, and comments made by the Comptroller and Auditor General in his management letter or other reports.

The Radiological Protection Institute of Ireland established an internal audit function which operates in accordance with the Framework Code of Best Practice set out in the Code of Practice on the Governance of State Bodies. The work of internal audit is informed by analysis of the risk to which the body is exposed, and annual internal audit plans are based on this analysis. The analysis of risk and the internal audit plans are endorsed by the Audit Committee and approved by the Board. The Board is provided with an annual report of internal audit activity by the Internal Auditor. The report includes the Internal Auditor's opinion on the adequacy and effectiveness of the system of internal financial control.

Annual Review of Controls

I confirm that in the year ended 31st December 2007 the Board had conducted a review of the effectiveness of the system of internal financial controls.

Signed on behalf of the Board



Prof Eugene Kennedy

Chairman

25th July 2008

Statement of Responsibilities of the Institute

Section 16 (1) of the Radiological Protection Act, 1991, requires the Institute to prepare financial statements in such form as may be approved by the Minister for the Environment, Heritage and Local Government with the concurrence of the Minister for Finance. In preparing these financial statements, the Institute is required to:

- Select suitable accounting policies and then apply them consistently
- Make judgements and estimates that are reasonable and prudent
- Prepare financial statements on the going concern basis unless it is inappropriate to presume that the Institute will continue in operation
- State whether applicable accounting standards have been followed, subject to any material departures disclosed and explained in the financial statements.

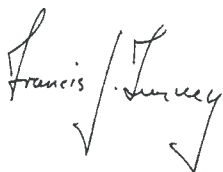
The Institute is responsible for keeping proper books of accounts which disclose with reasonable accuracy at any time the financial position of the Institute and which enable it to ensure that the financial statements comply with Section 16 (1) of the Act.

The Institute is also responsible for safeguarding the assets of the Radiological Protection Institute of Ireland and for taking reasonable steps for the prevention and detection of fraud and other irregularities.



Prof Eugene Kennedy

Chairman



Francis J. Turvey

Board Member

25th July 2008

Statement of Accounting Policies

1. Basis of Accounting

The Financial Statements are prepared on an accruals basis, except as stated below, and under the historical cost convention, in accordance with generally accepted practice. Financial reporting standards recommended by the recognised accountancy bodies are adopted as they become applicable. The unit of currency in which the financial statements are denominated is the Euro.

The Financial Statements are in the format approved by the Minister for the Environment, Heritage and Local Government with the consent of the Minister for Finance.

2. Income

Income shown in the Financial Statements under Oireachtas grants represent actual cash receipts in the year.

3. Fixed Assets

Fixed Assets are stated at cost less accumulated depreciation. Depreciation is calculated on a straight line basis by reference to the expected useful lives of the assets concerned. The rates are used as follows:

- Office & Laboratory, Furniture & Equipment: 20%
- Leasehold Improvements are depreciated over the life of the lease.

4. Superannuation

The Radiological Protection Institute operates a defined benefit pension scheme which is funded annually on a pay as you go basis from monies provided by the Minister for the Environment, Heritage and Local Government and from contributions deducted from staff salaries.

Pension costs reflect pension benefits earned by employees in the period and are shown net of staff pension contributions which are retained by the Institute. An amount corresponding to the pension charge is recognised as income to the extent that it is recoverable, and offset by grants received in the year to discharge pension payments.

Actuarial gains or losses arising on scheme liabilities are reflected in the Statement of Recognised Gains and Losses and a corresponding adjustment is recognised in the amount recoverable from the Department of the Environment, Heritage and Local Government.

Pension liabilities represent the present value of future pension payments earned by staff to date. Deferred pension funding represents the corresponding asset to be recovered in future periods from the Department of the Environment, Heritage and Local Government.

5. Capital Account

The Capital Account represents the unamortised amount of income used to purchase fixed assets.

6. Income in Advance

Income in advance relates to licence fee income paid in advance by licensees in respect of future periods.

Income and Expenditure Account

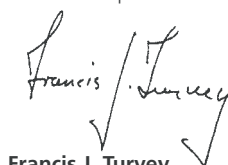
for the year ended 31st December 2007

2006 €		Notes	2007 €
Income			
4,662,000	Oireachtas Grant		3,971,000
1,204,745	Net Deferred Funding for Pensions	7b	1,415,908
(827,896)	Transfer to Capital Account	2	147,972
5,038,849			5,534,880
504,306	Dosimetry & Calibration Service		635,084
267,529	Radon Measurement Service		179,359
346,837	Radiation Monitoring Service		290,581
192,080	Regulatory Service		159,288
14,878	Miscellaneous/Contract Income		17,312
1,325,630			1,281,624
6,364,479			6,816,504
Expenditure			
2,981,490	Salaries	3	3,102,633
1,179,322	Pensions	7c	1,411,115
131,713	Dosimetry & Calibration Service		109,014
49,885	Radon Measurement Service		37,096
106,132	Radiation Monitoring Service		134,887
70,304	Regulatory Service		114,285
136,546	Communications		179,809
41,980	Nuclear Safety		77,948
41,785	Library & Document Management		51,164
457,712	Accommodation & Insurance	4	458,577
181,487	Travel & Subsistence		177,664
93,851	Recruitment and Training		176,605
140,434	MIS, IT & Customer Service		175,459
78,346	Postage, Phone & Office Supplies		93,010
98,779	Professional Fees & Miscellaneous		63,633
12,250	Audit Fees		12,500
0	Bad Debts		0
389,268	Depreciation		547,972
6,191,284			6,923,372
173,195	Surplus/(Deficit) for Year		(106,868)
614,438	Balance at 1st January		787,633
787,633	Balance at 31st December		680,765

The Statement of Accounting Policies and notes 1 to 11 form part of these Financial Statements.



Prof Eugene Kennedy
Chairman



Francis J. Turvey
Board Member

25th July 2008

Statement of Total Recognised Gains and Losses

for the year ended 31st December 2007

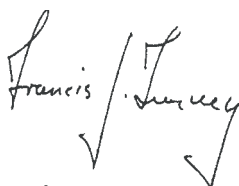
2006 €		Notes	2007 €
173,195	Surplus/(Defecit) for year		(106,868)
(3,000,000)	Experience (Losses)/Gains on pension scheme liabilities		(75,000)
181,000	Change in assumptions underlying the present value of pension scheme liabilities		2,280,000
(2,819,000)	Actuarial (Loss)/Gain on Pension Liabilities	7f	2,205,000
2,819,000	Adjustments to Deferred Pension Funding		(2,205,000)
173,195	Total recognised gain/(loss) for the year		106,868

The Statement of Accounting Policies and notes 1 to 11 form part of these Financial Statements.



Prof Eugene Kennedy
Chairman

25th July 2008



Francis J. Turvey
Board Member

Balance Sheet

as at 31st December 2007

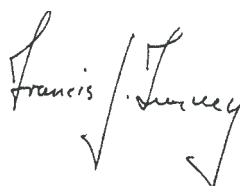
2006 €		Notes	2007 €
1,007,520	Fixed Assets	1	1,610,625
	Current Assets		
1,728,864	Cash on Hand & at Bank		851,287
444,018	Debtors	8	475,458
2,172,881			1,326,746
	Creditors – amounts falling due within one year		
267,320	Creditors	9	295,129
983,050	Capital Grant in Advance	10	231,973
134,880	Income in Advance		118,879
1,385,249			645,981
787,632	Net Current Assets		680,765
1,795,153	Total Assets Less Current Liabilities		2,291,390
17,600,745	Deferred Pension Funding	7d	16,811,654
(17,600,745)	Pension Liability	7e	(16,811,654)
1,795,153	Net Assets		2,291,390
	Financed by:		
787,633	Income and Expenditure Account		680,765
1,007,520	Capital Account	2	1,610,625
1,795,153			2,291,390

The Statement of Accounting Policies and Principles and notes 1 to 11 form part of these Financial Statements.



Prof Eugene Kennedy
Chairman

25th July 2008



Francis J. Turvey
Board Member

Notes to the Financial Statements

for the year ended 31st December 2007

1. Fixed Assets

	Leasehold Improvements €	Office and Laboratory Furniture and Equipment €	Total €
Cost			
At 1st January 2007	788,301	4,823,607	5,611,908
Additions	0	1,151,077	1,151,077
Disposals	0	(147,424)	(147,424)
At 31st December 2007	788,301	5,827,260	6,615,561

Depreciation

At 1st January 2007	480,930	4,123,458	4,604,388
Charge for year	25,617	522,355	547,972
On disposals	0	(147,424)	(147,424)
At 31st December 2007	506,547	4,498,389	5,004,936

Net Book Value at

31st December 2006	307,371	700,149	1,007,520
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Net Book Value at

31st December 2007	281,754	1,328,871	1,610,625
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During 2007, the Institute reviewed its Register of Fixed Assets and removed items originally costing €147,424 which were no longer in use.

2. Capital Account

	€	2007 €
Balance at 1st January 2007		1,007,520
Capital Grant Received	1,151,077	
Less: Grant Amortised in the Year	(547,972)	
Net Increase in Capital Account for the Year		603,105
Balance at 31st December 2007		1,610,625

Notes to the Financial Statements

3. Salaries and Pensions

	2007 €	2006 €
Gross Salaries	2,973,695	2,855,111
Employers P.R.S.I.	128,938	126,379
	3,102,633	2,981,490

The average number of full-time persons employed, excluding Board members, in the financial year was 46 (2006 – 46).

4. Commitments & Lease Obligations – Operating Leases

3 Clonskeagh Square

Lease commitments payable in the next twelve months amount to €270,000 on the basis of current rental rates and comprise rental payments on a leasehold interest, the term of which expires on 1st October 2018. The rental is subject to review at five-yearly intervals. The last such review was 1st October 2003.

1 Clonskeagh Square

Lease commitments payable in the next twelve months amount to €70,000 on the basis of current rental rates, and comprise rental payments on a 20 year leasehold interest commencing on 25th January 2008, with a break clause on 1st October 2018. The rent is subject to review at five-yearly intervals. The rent for the full area amounts to €140,000 per annum, but this is abated to €70,000 per annum as the RPII does not gain possession of the first floor until 1st February 2009.

Lease commitments payable in the next twelve months in respect of additional space in 1 Clonskeagh Square amount to €15,725 in respect of a lease that expires on 13th September 2008.

5. Capital Commitments

The value of capital commitments authorised at 31st December 2007 amounted to €706,438.

6. Board Members' Interests

The Board adopted procedures in accordance with guidelines issued by the Department of Finance in relation to the disclosure of interests by Board members and these procedures have been adhered to in the year. There were no transactions of any significance in the year in relation to the Institute's activities in which the Board members had any beneficial interest.

7. Pensions

a. Pension Scheme

Radiological Protection Institute operates a defined benefit scheme which is unfunded.

The valuation used for FRS17 disclosures has been based on an actuarial valuation by a qualified independent actuary to take account of the requirements of FRS17 in order to assess the scheme liabilities at 31st December 2007. The financial assumptions used to calculate scheme liabilities under FRS17 are

	At 31/12/2007	At 31/12/2006
Discount rate	5.5%	4.7%
Rate of Expected Salary Increase	4.0%	4.0%
Rate of increase in pension payment	4.0%	4.0%
Inflation	2.5%	2.25%

b. Net Deferred Funding for Pensions in Year

	2007 (€'000)	2006 (€'000)
Funding recoverable in respect of Current Year Pension Costs	1,604	1,382
State Grant Applied to Pay Pensions	(188)	(177)
	1,205	1,050

c. Analysis of Total Pension Costs Charged to Expenditure

	2007 (€'000)	2006 (€'000)
Current service cost	763	792
Interest on Pension Scheme liabilities	841	590
Employee Contributions	(193)	(203)
	1,411	1,179

d. Deferred Funding Asset for Pensions

The RPII recognises amounts owing from the State for the unfunded deferred liability for pensions on the basis of a number of past events. These events include the statutory backing for the superannuation scheme, and the policy and practice in relation to funding public service pensions including the annual estimates process. The RPII has no evidence that this funding policy will not continue to progressively meet this amount in accordance with current practice. The deferred funding asset as at 31st December 2007 amounted to €16.803 million (2006 €17.601 million).

e. Movement in Net Pension Liability During the Financial Year

	2007 (€'000)	2006 (€'000)
Net Pension Liability at 1st January	17,601	13,577
Current Service Cost	763	792
Interest Costs	841	590
Actuarial loss/(gain)	(2,205)	2,819
Pensions Paid in the year	(197)	(177)
Net Pension liability at 31st December	16,803	17,601

Notes to the Financial Statements

7. Pensions *(continued)*

f. History of Experience Gains and Losses

	2007	2006
Experience (gains)/losses on scheme liabilities amount (€'000)	(75)	3,000
Percentage of the present value of scheme liabilities	(0%)	17%
Total Amount recognised in STRGL (€'000)	(2,205)	2,819
Percentage of the present value of scheme liabilities	13%	(16%)

8. Debtors

	2007 €	2006 €
Debtors for Services	225,552	267,442
Bad Debts Provision	(6,797)	(9,433)
Prepayments	256,703	186,009
	475,458	444,018

9. Creditors

	2007 €	2006 €
Accruals	284,884	265,776
Collector General	10,254	1,544
	295,129	267,320

10. Capital Grant in Advance

This represents Capital Grants received in respect of projects that were not completed during the year:

	€
Opening Balance at 1st January	983,050
Capital Grants Received in the Year	400,000
	1,383,050
Capital Expenditure for the Year	1,151,077
Balance at 31st December	231,973

11. Approval of Financial Statements

The financial statements were approved by the Board on 25th July 2008.



Radiological Protection Institute of Ireland

An Institiúid Éireannach um Chosaint Raideolaíoch

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