



**Radiological Protection Institute of Ireland**  
Annual Report and Accounts 2006



**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 2006.



**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 have pleasure in presenting to you the Annual Report and Accounts of the Radiological Protection Institute of Ireland for 2006. The year was one of good progress in enhancing the protection of people in Ireland against hazards arising from ionising radiation, but a number of difficult issues remain to be addressed.

2006 saw the final phase of the RPII's pilot campaign to implement the legislation introduced in 2000 to control exposure to radon and other natural radiation sources in the workplace. The programme commenced in 2001 when the RPII directed approximately 3100 employers in Ennis and Tralee to measure radon. Despite an intensive media campaign in the region to raise employer's awareness of their responsibilities in relation to radon, a significant number did not respond. In March 2005 the Board approved a number of prosecutions of employers for failure to carry out radon measurements and failure to notify the RPII of the results of such measurements within a period of six months, as required by the legislation. These cases came before the District Courts during 2006 and resulted in the successful prosecution of three employers. As exposure to radon in workplaces can, in certain circumstances, result in exposures significantly in excess of those received by individuals from occupational exposure to artificial radiation, the RPII will continue to urge employers in High Radon Areas to measure radon in their workplaces and to use its powers of prosecution, when necessary.

In the Annual Report for 2005, I drew attention to the need to consider the establishment of a centralised waste storage facility to manage disused radioactive sources resulting from the use of radioactive substances in medicine, education, industry and elsewhere. Such a facility is required in order to minimise the risks associated with storage of radioactive waste at multiple locations and also to meet Ireland's international commitments in this area. During 2006, the issue remained a high priority for the Board and it again drew the Government's attention to the issue with the submission of a detailed report consolidating and bringing fully up to date its advice over many years on the matter. In particular, the Board now considers that a national policy on radioactive waste management is needed to deal comprehensively with the issue, up to and including final disposal. The lack of a radioactive waste storage facility received some negative comment during Ireland's presentation at the second review meeting of the IAEA Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, the only issue in a report that was otherwise well received. Failure to make progress in addressing this issue remains a serious concern.

A development during the first few months of 2007 which has long-term implications for the RPII was the decision by Government to establish a single agency, properly resourced, to deal with both ionising and non-ionising radiation matters and to achieve this by extension of the RPII's functions and powers. The Board has considered this possibility on a number of occasions in the past and believes it to be a very positive development provided the necessary resources are made available to it to undertake the additional work and that the functions, taking account of the interface with departments and agencies with existing responsibilities in the area, are specified as clearly as possible.

The Board has already considered the matter and we look forward to working closely with the Department of the Environment, Heritage and Local Government in the development of an implementation plan for the proposed new mandate for RPII.

I wish to record my own thanks and that of my fellow Board members to Ms Anita Dowling who retired from the Board in May 2006 having served a five-year term and Dr Séan Darby who resigned from the Board in November 2006. I welcome in their place Mr Patrick Gilligan as the nominee of the APSM and Dr Niall McEniff as the nominee of the Faculty of Radiologists. I welcome also the re-appointment of Ms Darina Muckian, Ms Adi Roche and Mr Frank Turvey, and in doing so thank them and all the other members of the Board for their generous services to the RPII.



I express my appreciation of the dedication and expertise which has at all times characterised the work of the RPII's staff. I also wish to acknowledge the contributions of the members of the RPII's Advisory Committees who give so generously of their time and expertise to assist the RPII in its work.

Finally, I wish to record the RPII's appreciation for the support and encouragement received from Mr Dick Roche, TD as Minister for the Environment, Heritage and Local Government and I look forward to working with the new Minister, Mr John Gormley, TD and the 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 co-operation and support during the year. The support of staff of other government Departments, third-level institutions and other agencies with which the RPII has worked during 2006 is also gratefully acknowledged.



**Prof Eugene Kennedy**

*Chairman*



# Chief Executive's Statement



During 2006 RPII continued to work towards achieving its mission of protecting people from the harmful effects of ionising radiation through effective regulation, monitoring of the environment and the provision of accurate and timely advice to the public and to Government.

## Regulation

The number of new licences issued during the year was 105 representing a steady expansion in the uses of ionising radiation in Ireland. Of particular note was the fact that three private hospitals were opened which when fully operational will offer a diverse range of radiological services. Plans are also advancing for the introduction of new radiological services to the public sector hospitals. Overseeing the establishment and maintenance of the appropriate radiation protection infrastructure for these hospitals will be a challenge for the RPII and other agencies involved in the regulation of medical uses of ionising radiation.

An important element in radiation protection infrastructure is the rollout of the RPII's register for Radiation Protection Advisors (RPAs) which was launched during 2005. By the end of 2006, 26 individuals and organisations had been approved to provide RPA services in the medical, dental and veterinary sectors. The formation of the register provides for the enforcement of the legal requirement that licensees appoint a registered RPA. During 2006, all medical licensees were required to ensure that their RPAs were registered. In addition, all dentists were advised that, from the next licence renewal in September 2007, each dental practice will be required to appoint a registered RPA and to arrange for the RPA to review the arrangements for ensuring good radiation protection in the practice.

In general, compliance with licence conditions by the 1581 licensees was good. Two hundred and two inspections were undertaken during the year with the principal focus on those licensees who had not been inspected since 2003. A new development during the year was the review during inspections of the arrangements for the security of radioactive sources prompted by the concern internationally at the potential for the diversion of such sources for malevolent purposes. This work was assisted by An Garda Síochána and a joint work programme is expected to be agreed during 2007. The main areas of non-compliance during inspection included failing to revise radiation safety procedures and risk assessments, when new radiation sources are acquired, and failing to provide the necessary information about sources to the relevant authorities and the public. There was one prosecution for unlicensed custody of a nuclear moisture density gauge.

The most serious incident reported during the year involved a case of "mistaken identity" where a quantity of the radionuclide technetium-99m used for a bone scan was administered to the wrong patient. In line with the conclusions of the hospital consultants, the RPII was satisfied that the health implications of the dose were not significant although the dose did exceed the dose limit for a member of the public. The RPII issued a letter of censure to the hospital and advised all medical licensees of the need to ensure that procedures for correct patient identification are available and implemented. The frequency of such incidents within the medical sector will be investigated further in 2007.

## Monitoring of the Environment

The RPII's environmental monitoring programme for 2006 showed that, with regard to the marine environment, the consumption of seafood continued to be the main pathway contributing to public exposure arising from artificial radioactivity in the marine environment with caesium-137 accounting for approximately 60-70% of the total dose. The mean annual committed effective dose to a heavy consumer of seafood from the Irish Sea was found to be 0.75  $\mu$ Sv, representing less than 0.1% of the dose limit for members of the public of 1000  $\mu$ Sv (1 mSv) from artificial sources of radiation. A study of caesium-137 and technetium-99 concentrations in seawater around the coastline was carried out in collaboration with the Environment and Heritage Service, Northern Ireland. The results of this study are characteristic of Sellafield discharges; that is, radionuclide concentrations are highest along the Irish Sea coast (23 mBq/l of caesium-137 and 15 mBq/l of technetium-99) with lower levels on the west coast of Ireland (3.8 mBq/l caesium-137 and 0.9 mBq/l of technetium-99 at Salthill, Galway).

## Radon

As it is the dominant source of radiation exposure of the Irish population, the RPII continued during 2006 to devote significant resources to its radon programme. Radon measurements were completed in 2646 households, adding a further 448 houses to the 3662 already found by the RPII to have radon concentrations above the reference level. Radon measurements were also undertaken in 513 workplaces of which 50 were schools. Four schools and 37 other workplaces were found to have radon concentrations exceeding the national reference level in one or more rooms and these were all advised to undertake remedial measures.

The prosecutions commenced against four employers in Tralee and four in Ennis in 2005 for failing to comply with directions to measure radon in their workplaces came before the District Courts during 2006. In three of the cases the defendants were convicted, fined and ordered to pay costs. In a further three cases the defendants pleaded guilty; however the cases were dismissed on the undertaking that each defendant paid €500 to the Court Poor Box. The remaining two cases were dismissed.

## Advice

One of the most important functions of the RPII is the provision of advice to Government and the public on radiological protection matters. During the year the RPII further progressed its three-year project to assess the various sources of radiation to which the Irish population is exposed. The focus during 2006 was on exposure to cosmic radiation and on radiation exposure to both natural and artificial radionuclides in the workplace.

Cosmic radiation comes from outer space and increases with altitude above sea level. In Ireland the dose from cosmic radiation at sea level is typically around 300  $\mu$ Sv annually. For air crew or frequent flyers, the radiation doses can be considerably higher. Based on the number of flights taken by Irish residents in 2005, the RPII study estimates that, averaged across the whole population of 4.23 million, the average individual dose from airline travel is an additional 45  $\mu$ Sv over and above the sea level dose. In the case of aircrew, the radiation doses could potentially be much higher and their exposure has been subject to regulation and an annual dose limit of 20 mSv since 2000. The results of the RPII study show that while the number of air crew estimated to receive annual doses in excess of 1 mSv has increased year on year since then, no doses over 6 mSv were recorded during 2006.

In terms of occupational exposure, the RPII study shows that between 1996 and 2005, the number of exposed workers have generally increased year on year, with the majority in the medical

sector. However, the collective doses for workers in the medical, industrial and education/research sectors have remained more or less constant over the last few years, at 47, 50.3 and 0.6 man mSv respectively.

During the year, the RPII continued to closely monitor developments at Sellafield and other UK nuclear sites. No incidents meeting the notification criteria of the seven point International Nuclear Event Scale (INES) were reported in the UK. In October, RPII staff visited the Wylfa Nuclear Power Plant in Anglesey, North Wales, the largest of the UK magnox reactors and the closest nuclear site to Ireland. The visit provided a comprehensive overview of the management, regulation and operation of the facility.

Over many years, the RPII has consistently advised Government on the need for the provision of a storage facility to deal with radioactive waste generated in Ireland. During 2006, a detailed report was prepared for Government setting out the current waste problem in Ireland and extending the RPII's advice to underline the need for the development of a national policy on radioactive waste management. Such a policy would take account of both Ireland's domestic and growing international commitments in this area and would deal with the issue of radioactive waste management in a comprehensive way – from acquisition of sources to final disposal.

## Corporate Services

The new organisation structure introduced in 2005 continued to support the RPII in achieving its mission, particularly thorough positive developments in the areas of human resources, information communication technologies and records managements. Despite this, insufficient staff resources, particularly in the administrative area, continued to mean that some functions could not be fulfilled. A detailed submission on the matter was made to our parent Department, the outcome of which is awaited.

Finally, I wish to express my personal appreciation to all the staff of the RPII for their continued dedication and support in pursuing the organisation's mission during the year. I also gratefully acknowledge the support of the staff of the Environmental Radiation Policy Section of the Department of the Environment, Heritage and Local Government and other officials in the Department for the work of 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 Institute'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 2006 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 sections of this report set out the work undertaken in each of the RPII's four divisions during the year.





# Regulatory Services

## Introduction

The RPII is responsible for regulating the use of ionising radiation by licensees in the medical, veterinary, educational and industrial sectors. Ionising radiation is used in these sectors for diagnostic, therapeutic, research and development, 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).

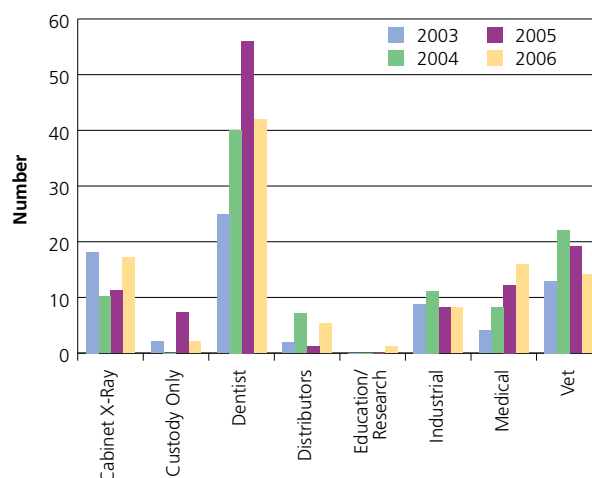
## Licensing Matters

The licensing of all users of sources of ionising radiation is one of the core activities of the Regulatory Services Division. It is through compliance with the conditions attached to each licence that the highest standards of radiation protection are ensured.

During the year, the RPII issued 105 licences to new practices – this compares to 114 in 2005 and 98 in 2004. Of the new licences issued in 2006, 42 (40%) were to licensees in the dental sector and 21 (20%) were issued to industrial and educational establishments for the use of cabinet style X-ray equipment. Figure 1 illustrates the range of new licences issued during the year, with comparative data included for 2003, 2004 and 2005. Three private hospitals were opened in 2006 – one in the south east and two in the Dublin area. When fully operational, they will offer a diverse range of radiological services including diagnostic X-ray, nuclear medicine, Positron Emission Tomography (PET)/Computed Tomography (CT) and radiotherapy. The introduction of the new PET/CT facilities will double to six the number of such facilities in Ireland. Currently all PET/CT services are provided by the private health care sector. However, it is anticipated that two such facilities will be introduced into the public sector hospitals in the next few years. The establishment and maintenance of the appropriate radiation protection infrastructure in such specialist facilities represents a significant challenge in terms of procedures, training and the availability of relevant specialists particularly in the medical physics field.

During 2006, a licence was issued to the Office of the Revenue Commissioners for a mobile X-ray container scanner for use by customs officers, primarily for the detection of contraband. It also has radioactive material detection capabilities, an important development for Ireland in its capacity to detect any potential illicit trafficking of sources.

Figure 1: New licences issued



All licensees are required to notify the RPII one month in advance of any proposed changes to the details of their licence. During the year, 866 requests for amendments to existing licences were received. Furthermore, 304 existing licences were renewed.

## Legal Requirements for Users of Medical X-ray Equipment

When performing X-ray exposures of individuals for medical purposes, holders of X-ray units are required to comply with two separate statutory instruments relating directly to radiation protection: S.I. No. 125 of 2000 which implements the European Commission's Basic Safety Standards Directive (Directive 96/29/Euratom) dealing with the protection of the worker and members of the public from the dangers of ionising radiation and S.I. No. 478 of 2002 which implements Council Directive 97/43/Euratom on the health protection of individuals against the dangers of ionising radiation in relation to medical exposures. The RPII is the competent authority for S.I. No. 125 of 2000 and enforces its requirements whereas the Minister for Health and Children is the competent authority for the purposes of S.I. No. 478 of 2002.

S.I. No. 478 of 2002 sets out requirements for prescribers and practitioners responsible for taking X-rays of patients including provisions relating to the registration of these persons. To date no register has been created to recognise persons, other than those approved by the Medical and Dental Councils, to take X-rays for medical purposes. A number of chiropractors hold a licence from the RPII in respect of X-ray equipment in compliance with the requirements of S.I. No. 125 of 2000. However, the Board is concerned that there are insufficiencies in the enforcement of the provisions of S.I. No. 478 of 2002 in this sector.

Following consideration of the up-to-date position at a meeting of the Board in December, the Chairman wrote to the Minister for Health and Children, Ms Mary Harney, TD, bringing to her attention concerns that the RPII continues to have in relation to the potential for unregulated medical use of X-ray equipment by chiropractors and others which gives rise to concerns for the safety of patients involved and urging her to ensure that the provisions of S.I. No. 478 of 2002 are enforced by her Department. The Minister in response indicated that it is not proposed to recognise additional health professionals as practitioners for the purposes of the legislation and that the current legislation would be amended to strengthen the enforcement provisions.

## Dental Licences

It is a requirement under S.I. No.125 of 2000 that all dental and medical licensees shall appoint a Radiation Protection Advisor (RPA) and registered RPAs have already been appointed to all licensed medical facilities. The RPII developed new licensing conditions during the year, to take effect from September 2007 for existing licensees, which will require each dental practice to appoint an RPA and to arrange for the RPA to undertake a review of the design and layout of all areas in which X-ray equipment is used and to ensure that biennial quality assurance testing of X-ray units was carried out. Furthermore, installers of new X-ray units will also be required to undertake an installation examination of each unit and to provide a written report of the outcome of the examination to the dentist.

The new licensing requirements for 2007 were outlined to the Irish Dental Association in April 2006 at its Annual Scientific Meeting. In addition, the RPII wrote to each of its dental licensees in December advising them that it would enforce the requirement for each practice to have appointed an RPA by the next licence renewal period in September 2007. Each dentist was forwarded a list of approved RPAs available to provide services in the dental sector and advised to appoint an RPA as soon as possible.

## Inspections

During the year, the RPII undertook 202 inspections across all licensing categories. While the RPII generally gives prior notice to its licensees of inspections, a small number of unannounced inspections was carried out. The number of inspections per type of licensee in 2006 is presented in Table 1.

**Table 1: General licence categories and inspections**

Licence Category	Number of licensees	Inspections Undertaken in 2006
Industrial Users	311	97
Industrial Distributors	31	8
Education & Research	21	6
Government Departments and State Run Services	5	2
Hospitals/Medical	163	50
Medical Distributors	26	6
Veterinary Surgeons	192	13
Dentists	832	20
<b>TOTAL</b>	<b>1581</b>	<b>202</b>

One of the priorities for the 2006 programme was the inspection of licensees that had not been inspected since 2003 with particular emphasis on hospitals with nuclear medicine departments and companies with X-ray equipment. All radiotherapy facilities that had not been inspected the previous year were also included in the programme. As well as auditing compliance with regulatory and licensing requirements, inspectors also reviewed the security arrangements within hospitals and industrial premises. This review considered the security and storage arrangements for all sealed and unsealed sources as well as internal procedures for the delivery of new sources which often take place outside of office hours, particularly in the case of hospitals. In addition, the inspection programme provides the RPII with an opportunity to share best practice in radiation protection between licensees.

The level of compliance among licensees was found to be good. However, there were a number of areas of non-compliance that were identified during the year in the course of inspections. These included failing to revise radiation safety procedures and risk assessments, not notifying the Chief Fire Officer of the local authority of the presence and location of licensed items, failing to notify the RPII of changes to licence details, monitoring instruments not being calibrated, warning signs not being displayed and not ensuring that all relevant workers wear personal dosimeters at all times.



## Enforcement

In January 2006, the RPII took legal action against a licensee for unlicensed custody of a nuclear moisture density gauge and a number of other charges relating to wipe testing, calibration, record keeping and segregation of sources. The licensee was convicted for the unlicensed custody of the nuclear moisture density gauge, fined and ordered to pay legal costs at the District Court, Nenagh.

A number of solicitor's letters were issued as part of the licence renewal process which was successful in regularising outstanding issues. Directions were also issued as required by inspectors compelling licensees to address a variety of issues within a specified time.

The RPII is empowered to direct employers to measure radon and to take prosecutions against those failing to comply with a direction. During 2005, the RPII took prosecutions against eight employers in Tralee and Ennis for failing to comply with such a direction. The cases came before the District Courts in Tralee and Ennis during 2006. In Tralee, three defendants pleaded guilty; however the cases were dismissed on the undertaking that each

defendant paid €500 to the Court Poor Box. The fourth defendant pleaded not guilty and the case was dismissed as the RPII could not prove to the satisfaction of the court that the direction was properly communicated to the defendant. In Ennis, three of the defendants were convicted, fined and ordered to pay costs and the fourth case was dismissed as the prosecution case could not proceed on the day.

## Reportable Incidents and Doses

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 are 2 mSv and 50 mSv respectively over a 16 week period.

The RPII was notified of 21 such reportable doses during the year. Following investigations into each reported dose, the RPII was able to determine that none of the individuals to whom the dosimeters were assigned had actually received the recorded dose in the course of their work activities.

In January, the RPII assisted the Longford County Fire and Rescue Service with the retrieval of a fire damaged gauge containing an americium-241 source from a licensee's premises, which had been partially destroyed by fire. The gauge was successfully recovered and is now in secure storage. As the gauge construction was robust, it prevented any leakage of the americium-241 source.

In July, the RPII recovered an 'orphan' source from a member of the public who had discovered a small lead box with the words 'uranium' on it, while clearing out a shed at the end of the garden. The contents were analysed and confirmed to be a compound of uranium of a licensable quantity and a rock/ore sample which also contained uranium though not in licensable quantities. The items are currently held in temporary secure storage by the RPII.

During the year, the RPII investigated an incident in which a quantity of technetium-99m was mistakenly administered by hospital staff to the wrong patient in a mix-up over patient identification. The individual was subsequently sent for a bone scan which had been prescribed for another patient with the same name. The RPII took the view, in line with S.I. No. 125 of 2000, that as the technetium-99m had not been administered for a prescribed diagnostic procedure, the individual is considered, in the strict sense of the law, to be a member of the public and not a patient. In practical terms this meant that the hospital was considered to be at fault for allowing a member of the public to receive a dose in excess of the dose limit for a member of the public. However, in line with the conclusions of the hospital consultants, the RPII was satisfied that the health implications of the dose were not significant in this case. Following its investigation the RPII issued a letter of censure to the hospital and subsequently wrote to all its medical licensees advising them of this incident, of the need to ensure that procedures for patient identification are available and implemented and of the legal implications arising.

## Radiation Protection Adviser Register

The RPII launched a register for Radiation Protection Advisors (RPA) in October 2005. An Assessment Committee comprising three senior staff of the RPII and two external experts was established for the purpose of assessing applicants to the register. This register contains the names of those persons approved to provide RPA services in the medical, dental and veterinary sectors. During 2006, 32 applications were submitted to the Assessment Committee from individuals wishing to be approved to act as an RPA. Following recommendations from the Assessment Committee, 26 of the applications were approved. In the case of the applicants who were unsuccessful the chairperson of

the Assessment Committee wrote to each of them explaining why their application was unsuccessful and in some cases recommended actions that could be taken to address the areas where they failed to meet the criteria.

## Radioactive Waste Report

It has been the consistent position of the RPII over many years to advise Government that there is a need for the provision of a storage facility to deal with radioactive waste generated in Ireland. In a report submitted during the year to Government titled *'Towards a Radioactive Waste Management Policy for Ireland'* the RPII detailed the current waste problem in Ireland and extended its advice to underlining the need for the development of a national policy on radioactive waste management. Such a policy would take account of both Ireland's domestic and growing international commitments in this area and would deal with the issue of radioactive waste management in a comprehensive way – from acquisition of sources to final disposal.

## Security of Sources Initiative

While responsibility for radioactive sources clearly rests with licensees, the safety and security of sources, particularly when they are of very high radioactive content or are no longer in use, gives rise to a heightened level of concern. This concern is reflected internationally where the potential for the diversion of such sources for malevolent purposes is now under active consideration. During 2006, the RPII has worked with An Garda Síochána on an initiative with a view to agreeing a joint programme in 2007 aimed at addressing those security concerns in a comprehensive way.

## Memorandum of Understanding with the Health and Safety Authority

The Health and Safety Authority and the RPII signed a Memorandum of Understanding (MoU) in September focusing on the hazards associated with ionising radiation in the workplace.

The MoU concentrates on a number of key areas of cooperation. These include the transport of radioactive materials, hazards and accidents in the workplace involving sources of ionising radiation as well as operational liaison between the two organisations. The MoU also highlights the hazards of radon in the workplace and establishes a joint working group on the issue. This cooperation will assist both organisations in implementing the Safety, Health and Welfare at Work Act, 2005, that places duties on employers in respect of ionising radiation. In addition, the Health and Safety Authority will continue to provide a representative to sit on the RPII's Medical Radiation Advisory Committee (MRAC).



# Radiation Monitoring and Measurement Services

## Introduction

The primary functions of the Radiation Monitoring and Measurement Services Division are to monitor radioactivity in the environment and to provide a range of high quality measurement services which constitute a crucial part of the national radiation protection infrastructure. The Division implements a comprehensive environmental monitoring programme, which involves the regular sampling and analysis of a range of environmental and food samples. The aims of this programme are to measure the exposure of the Irish population to radioactivity in the environment, to assess the distribution of contaminating radionuclides 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. The Division currently provides approximately 30 individual measurement services across the five service areas: radon, calibration, dosimetry, food certification and analytical services. Clients include, hospitals, householders, exporters of Irish food produce, industry and Government agencies.

It is the policy of the RPII to achieve and maintain a high standard of quality, consistent with customer and regulatory requirements in all aspects of its monitoring and measurement activities. The Division is externally accredited by the Irish National Accreditation Board and regularly participates in interlaboratory comparison programmes relevant to each of its five service areas. Prior to the reorganisation of the RPII in 2005, three separate quality management systems were in place in the radio-analytical laboratory, radon measurement service and dosimetry/calibration services. During 2006, these were reorganised into a single system based on one quality manual under a single divisional quality manager. This rationalisation has not only led to improved efficiencies but has improved the value of the system through the exploitation of synergies across the division.

## Environmental Monitoring

During 2006, the RPII implemented a comprehensive environmental monitoring programme involving 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.

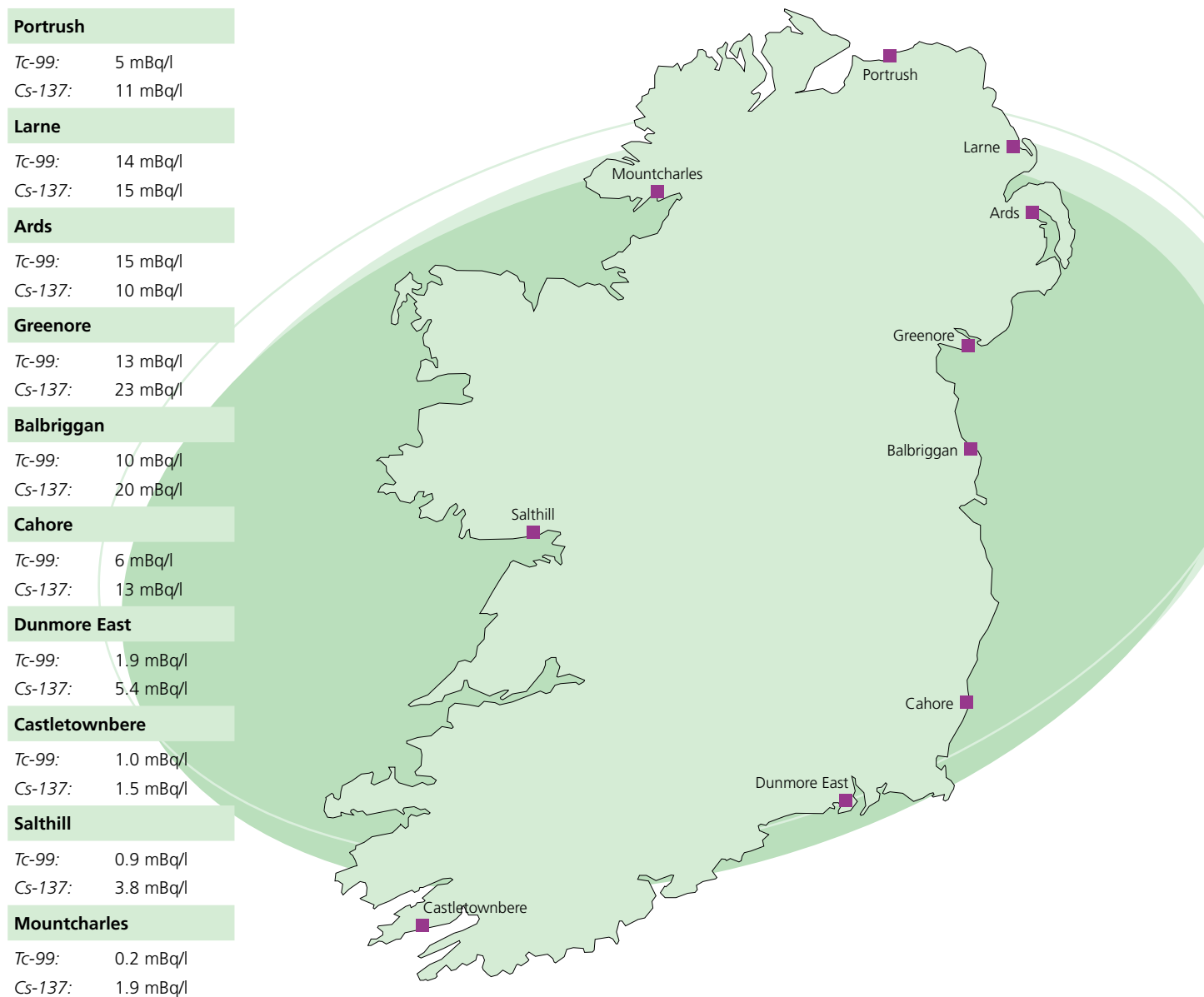
With regard to the marine environment, approximately 300 samples of fish, shellfish, seaweed, seawater and sediment were collected and tested during the year. As in previous years, the consumption of seafood was found to be the main pathway contributing to public exposure arising from artificial radioactivity in the marine environment and caesium-137 was found to be the dominant radionuclide, accounting for approximately 60-70% of the total dose. The mean annual committed effective dose to a

heavy consumer of seafood from the Irish Sea was found to be 0.75  $\mu\text{Sv}$ , which may be compared to 1.1  $\mu\text{Sv}$  in 2005 and 0.8  $\mu\text{Sv}$  in 2004. These data are consistent with the pattern observed since the late nineties where the doses to seafood consumers calculated annually have remained relatively constant, with small year to year fluctuations influenced primarily by changes in commercial fishing patterns rather than by changes in radioactivity concentrations in the environment.

The RPII, with the assistance of Met Éireann, makes continuous measurements of radioactivity in air and ambient gamma dose rate through a national network of permanent monitoring stations. During 2006, ambient gamma dose rate was measured at 15 stations and radioactivity in air was measured at 8 stations. Levels of airborne radioactivity were low and consistent with measurements in previous years with no abnormal levels of ambient gamma dose rate observed. Sampling and testing was undertaken of mixed diet, milk and miscellaneous other foodstuffs including milk products, baby foods, beef, lamb, poultry and vegetables. These measurements show that levels of man-made radioactivity in the Irish diet continue to be low.



**Figure 2: Radioactivity in seawater – all-island study**



During 2006, a study of caesium-137 and technetium-99 concentrations in seawater around the coastline was carried out in collaboration with the Environment and Heritage Service, Northern Ireland. The results of the caesium-137 and technetium-99 measurements are shown in Figure 2 and illustrate the geographical distribution that is characteristic of Sellafield discharges, being highest along the north-east coast between Balbriggan, Co. Dublin and Larne, Co. Antrim and gradually decreasing going down the east coast towards Cahore, Co. Wexford and up the north coast towards Portrush, Co. Antrim with lower levels measured on the west coast of Ireland.

The results of the RPII's environmental programme 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 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. In 2006, for the first time marine, terrestrial and atmospheric data were brought together into a single environmental monitoring report covering the years 2003 to 2005. Previously, results were published separately in the Marine Monitoring and Environmental Radioactivity Surveillance Series.

## Analytical Services

The radiochemistry section of the Division measures radionuclide concentrations in a wide range of samples both in support of the RPII's monitoring programmes and on behalf of external clients such as industry, other government bodies and members of the public. The range of radiochemical measurement services provided by the laboratory during 2006 included: testing of Irish produce for compliance with the requirements of importing countries, testing of drinking water for compliance with the requirements of the Drinking Water Directive (98/83/EC), 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 2208 samples were tested during the year and Table 2 presents the breakdown of this number by sample type.

The number of product certificates issued in 2006 to exporters of Irish produce was 4229, which may be compared with 4422 and 4242 in 2005 and 2004 respectively. These figures confirm a continued steady demand for this service.

**Table 2: Radioactivity testing on environmental samples and foodstuffs, 2006**

Air	400
Beef	12
Lamb	17
Pork/Poultry	5
Drinking water	117
Fish and shellfish	87
Seawater, sediments and seaweed	130
Milk and dairy products	563
Pharmaceuticals & additives (concentrates, ingredients)	210
Food other (grains, alcohol)	90
Miscellaneous (wipes, canteen food)	577
<b>TOTAL</b>	<b>2208</b>

## Personnel Dosimetry

During 2006, some 80,000 dosimeters were supplied by the Dosimetry Service to 1000 clients around Ireland, with approximately 9000 individuals monitored. The highest annual whole-body dose recorded during 2006 was 4.9 mSv. This may be compared with the annual whole-body dose limit of 20 mSv for workers exposed to ionising radiation.

Measurable extremity doses were recorded by personnel working in industry, research and hospitals. A hospital physicist received the highest annual extremity dose of 62.7 mSv to her right hand. This value may be compared with the annual extremity dose limit of 500 mSv for workers exposed to ionising radiation.

Dosimetry staff continued to make an input in two international groups, the European Radiation Dosimetry Group, EURADOS and the UK Personal Radiation Monitoring Group, PRMG, which stimulate collaboration on dosimetry issues.

## Instrument Calibration

In 2006, 396 instruments were tested by the Service for compliance with the relevant manufacturer's specifications.

Licensees holding sealed radioactive sources are required to have them tested every two years for leakage. In 2006, approximately 400 wipe tests were analysed and none were found to exceed the reference level of 200 Bq.

During 2006, the Service continued to be a member of the International Atomic Energy Agency Secondary Standard Dosimetry Network and the Ionising Radiation Metrology Forum. It also continued its involvement in the European Metrology group, EUROMET, 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 with 2646 households completing measurements in 2006. Of these, 448 were found to exceed the national reference level of 200 Bq/m<sup>3</sup>. This brings to 4110 the number of domestic dwellings nationally found by the RPII to have radon concentrations above the reference level. In 2006, the service undertook radon measurements in 513 workplaces which included 50 schools. Four schools and 37 other workplaces were found to have radon concentrations exceeding the national reference level in one or more rooms and these were all advised to undertake remedial measures.

# Advisory Services

## Introduction

The Advisory Services Division is responsible for the provision of information and advice to Government and to the public. The principal work areas covered are nuclear safety, emergency preparedness and radon. The Division also manages the RPII's website and all contacts with the media. The Division co-ordinates dose assessment studies and all international consultancy work by RPII staff.

## Radon Advice

### Radon Road Shows

During 2006, the RPII continued its series of radon road shows aimed at heightening awareness amongst the public of the dangers of radon. Two road shows were held in Clonmel and Galway. These received significant local and national media coverage and resulted in an increase in the number of radon measurements completed. The RPII also operated an information stand at the National Ploughing Championship in Carlow in September. Approximately 1000 people visited the stand over the four day event.

### National Radon Forum

In November, the RPII hosted the fourth National Radon Forum in Galway. The high radon levels in Ireland when compared to international levels was a major theme of the forum along with the ways that local authorities can address the radon risk locally. The forum heard from speakers from the World Health Organisation, South Tipperary County Council, the Health Services Executive, the Health Protection Agency in the UK, the Geological Survey of Ireland and the RPII. The forum was the largest to date with nearly 100 participants including local authorities, radon remediation and radon measurement companies as well as groups concerned with public health.

## Assessment of Radiation Doses

In 2005, the RPII commenced a three-year project to assess the various sources of radiation to which the Irish population is exposed. During 2006, two pathways were evaluated in detail: exposure to cosmic radiation and doses received by those who are occupationally exposed to artificial sources of radiation. This involves examining each pathway in detail, identifying those who are exposed and calculating both the total dose and the average dose per individual.

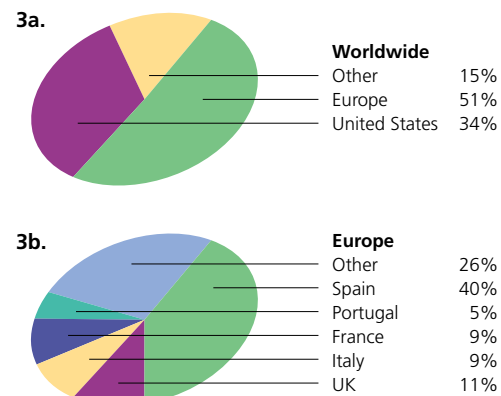
## Cosmic Radiation

Cosmic radiation comes from outer space and increases with altitude above sea level. In Ireland, the dose from cosmic radiation at sea level is relatively constant with each individual receiving a dose of approximately 300 microsievert ( $\mu\text{Sv}$ ) annually. Experimental data show good agreement with theoretically calculated values.

An evaluation of national statistics shows there has been a 50% increase in the number of flights taken by Irish residents between 2001 and 2005. This increase is primarily on short-haul flights to Europe, but there have been significant percentage increases in long-haul flights to the United States of America, Asia and Australia.

Figure 3a shows that in 2005, just over 50% of the collective dose was received on flights to Europe, principally to Spain and to the UK (Figure 3b). Long-haul flights tend to give rise to higher cosmic radiation doses and this is reflected in the relatively large contribution to collective dose from flights to the United States. Overall, when the total dose is averaged across the entire Irish population of 4.23 million, the average individual dose from airline travel is an additional 45  $\mu\text{Sv}$ . Frequent flyers would be expected to receive considerably higher annual radiation doses.

**Figure 3: Distribution of collective doses received by Irish residents from airline passenger travel (2005)**

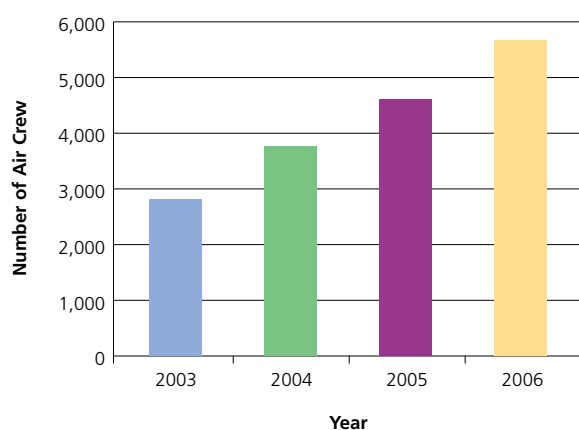


Doses received by air crew occupationally exposed to cosmic radiation have also been evaluated. The exposure of aircrew to cosmic radiation is subject to regulation under S.I. No 125 of 2000. The holder of an air operator's certificate is required to evaluate the doses received to determine if measures to control exposure to cosmic radiation are warranted. This requirement applies to those air operators whose crew are potentially liable to receive an annual dose greater than 1 millisievert (mSv),



which effectively applies only to those airlines flying above 8,000 meters. Doses are estimated by the airlines using internationally recognised software models. Figure 4 illustrates the continuing trend of increased numbers of aircrew receiving estimated annual radiation doses above 1 mSv. For 2006, the information received from 6 out of 8 licensed air operators showed that 5686 individuals were estimated to receive annual radiation doses above 1 mSv. Of these, 2791 received between 1 and 2 mSv, while 2589 received doses between 2 and 4 mSv and 306 received doses over 4 mSv. No doses over 6 mSv were reported.

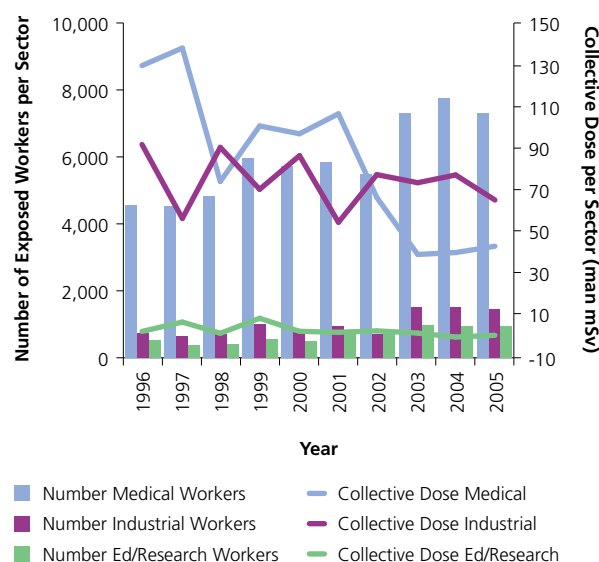
**Figure 4: Number of aircrew estimated to have received annual radiation doses greater than 1 mSv**



### Occupational Exposure to Artificial Radiation

A review of the RPII database of exposed workers and the radiation doses they received occupationally between 1996 and 2005 (Figure 5) shows that the number of exposed workers has generally increased year on year. It is also clearly evident that the greatest number of exposed workers is in the medical sector. Figure 5 also shows that while the number of exposed workers has increased, the collective dose has consistently fallen. This is particularly the case for the medical sector which has seen a two-fold decrease in collective dose since 1996. Doses to workers in the industrial sector have remained relatively constant over the past 10 years and currently represent approximately 60% of the total collective dose from occupational exposure. Diagnostic radiology and site industrial radiography represent more than half the collective dose in the medical and industrial sectors respectively.

**Figure 5: Number of workers monitored for exposure to radiation and collective dose in each respective sector in Ireland 1996-2005**



In 2006, the collective dose received by exposed workers in the medical, industrial and education/research sectors was 47, 50.3 and 0.6 man mSv respectively, broadly similar to the values for the previous year.

Assessments have also been made of the doses received by workers exposed to radon in underground mines and show caves. Since 2001, four such workplaces are monitored – three show caves and one mine – where some workers are liable to receive annual doses above 1 mSv. The data are summarised in Table 3. In 2006, the highest dose received by an individual worker was 3.9 mSv.

## Emergency Preparedness

### National Radiation Monitoring Network

As part of the National Emergency Plan for Nuclear Accidents (NEPNA), the RPII operates a national network of 15 gamma dose rate stations which were upgraded and expanded in 2005.

During 2006, the RPII commenced the upgrade and expansion of its radioactivity in air monitoring network. The new network will include five automated online air sampling stations which will allow instant access to data, as well as seven off-line manual air samplers. The automatic stations will continuously monitor radioactivity in the air and communicate results to the RPII.

**Table 3: Doses received by show cave guides and underground miners in Ireland (2001-2006)**

	2001	2002	2003	2004	2005	2006
<b>Show Cave Guides</b>						
Number of Exposed Workers	15	14	21	17	25	32
Mean (mSv)	4.8	3.4	2.2	1.9	2.9	1.5
Range (mSv)	0.4 - 11.0	0.5 - 12.0	0.3 - 6.1	0.3 - 7.2	0.3 - 9.6	0.2 - 3.9
Collective Dose (man mSv)	72	48	46	32	72	48
<b>Underground Miners</b>						
Number of Exposed Workers	no data	18	no data	40	23	no data
Mean (mSv)	no data	1.2	no data	0.4	0.6	no data
Range (mSv)	no data	0.1 - 2.8	no data	0.02 - 1.6	0.2 - 1.0	no data
Collective Dose (man mSv)	no data	22	no data	18	13	no data

### Emergency Exercises and Training

In order to carry out its role under the NEPNA, the RPII has in place an operational sub-plan. An important aspect of emergency preparedness is the execution of regular emergency drills and exercises of the sub-plan. In 2006, the RPII participated in a number of international notification and data exchange exercises organised by the European Commission and International Atomic Energy Agency (IAEA). In addition, an exercise and training in emergency preparedness was carried out using the atmospheric dispersion model in ARGOS (Accident Reporting and Guidance Operational System). An emergency exercise strategy was prepared for the RPII sub-plan together with a programme of exercises for 2007-2009. Work was also carried out on evaluating accident scenarios for both Wylfa and Sellafield and the potential impacts of such accidents on Ireland.

### 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 IAEA, the Nuclear Energy Agency (NEA) of the Organisation for Economic Co-operation and Development and the World Health Organisation.

The RPII continues to represent Ireland on over 20 international scientific and technical committees and working groups, including Committee 4 of the International Commission on Radiological Protection (ICRP). The RPII chairs the IAEA's Transport Safety Standards Committee (TRANSSC), the WHO's Working Group on Radon Exposure Guidelines and the European Radiation Protection Authorities Network (ERPAN).

The RPII participated in the Working Party on Nuclear Safety, set up under the aegis of the Atomic Questions Group of the European Commission, which completed its work in 2006. The Working Party reviewed international best practice in nuclear safety and in the safe management of radioactive waste, including the financial arrangements to meet decommissioning costs. The Working Party recommended, *inter alia*, establishing a High Level Regulators Group on Nuclear Safety within the European Union to maintain and further improve nuclear safety.

During 2006 the RPII took an active role in the work of the IAEA Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management. Each Contracting Party to the Convention is required to present a report at review meetings, which are normally held every three years. These reports, which are reviewed and discussed by other contracting parties, describe the steps being taken and planned to address issues related to the safe management of spent nuclear fuel and radioactive waste. The RPII presented Ireland's report for the 2006 Review Meeting on behalf of the Department of the Environment, Heritage and Local Government and another member of RPII staff acted as *rapporteur* for one of the review groups. Ireland's report was generally well received, although the lack of a radioactive waste storage facility for disused and orphan sources received negative comment.

The RPII continues to maintain close contact with the two UK nuclear regulators, namely the Nuclear Installations Inspectorate of the Health and Safety Executive and the Environment Agency. Contacts were also established during the year with the UK's Nuclear Decommissioning Authority.

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 2006, this involved working visits to Bangladesh, Brunei, Ethiopia and Zambia. In addition, as part of a contract to develop technical capabilities in Applicant States, two scientists from the RPII spent a number of weeks providing training in Bulgaria on the measurement of radioactivity in drinking water.

## Advice to Government

### Nuclear Safety Abroad

The RPII continues to closely monitor developments at Sellafield and other UK nuclear sites. At Sellafield this monitoring is focused, in particular, on progress in the programme of emptying the Highly Active Storage Tanks and vitrifying their contents and in the decommissioning of redundant facilities. The RPII also follows closely the plans being developed by the operators of Sellafield, the British Nuclear Group, to prevent a recurrence of the major leak that occurred in 2005 in the Thermal Oxide Fuel Reprocessing Plant (THORP). The plant remained closed during 2006.

No incidents meeting the reporting criteria of the seven point International Nuclear Event Scale (INES) were reported in the UK. However, as part of bilateral arrangements to exchange information on events of possible interest in Ireland, the RPII was informed of a number of more minor incidents by the UK Nuclear Installations Inspectorate (NII). Two of these occurred at Sellafield but were of no radiological significance for Ireland.

The RPII also prepared a technical assessment of a number of international reports dealing with issues such as reactor decommissioning and waste management. It advised on the significance of nuclear incidents that occurred in other countries.

### RPII Visit to Wylfa

The RPII is concerned to ensure that its advice and information to Government on nuclear safety issues is accurate, comprehensive and as up to date as possible. For these reasons the RPII visited the Wylfa Nuclear Power Station in Anglesey in North Wales. Wylfa was selected for such a visit as it is the largest of the UK Magnox reactors, has the longest remaining projected operational life of the Magnox reactors and, at some 120 km from Dublin, is the closest nuclear site to Ireland. It was also felt that a visit to a Magnox reactor would in itself be a useful exercise in that Magnox reactors, which utilise graphite as a moderator and carbon dioxide as a coolant, are essentially unique to the UK. Detailed information on their design and operation is, therefore, more difficult to obtain than for the more common light water reactors.

The visit, which took place 23-24 October 2006, was arranged through the NII. Staff from Magnox Electric, which operates Wylfa as well as other Magnox stations, provided a comprehensive overview of the management, regulation and operation of the facility and a tour of the site. The NII and the UK Environment Agency (EA) which regulates discharges from all nuclear sites in the UK, also participated in the visit. A report on the visit has already been published.

## Communications

A range of communications activities and events were undertaken during the year to build awareness of the RPII and its activities among its key audiences such as members of the public, customers, local and central government, employers and the media.

A three-year framework agreement with a single designer was put in place with the aim of consolidating the RPII's corporate image using a unified design across all printed publications and materials. The development of corporate branding guidelines was also initiated.

As part of a proactive public and media relations campaign, press releases were issued to coincide with the RPII's major events. A regional media campaign was run during the year and for the first time local radio advertising was used to raise awareness of radon. Media interest was strong during the year with staff participating in over 45 television and radio programmes. The RPII's activities were widely reported in the print media and many articles were featured in consumer and trade publications.

The RPII website continued to be updated during the year. Following media activity in relation to radon in July and November the number of hits were three times higher than the average, indicating the importance of the website in communicating with the general public. The most visited sections of the site included: radon maps and information, publications, press releases and emergency planning information.

The RPII launched a new scheme during the year whereby financial support was offered for postgraduate research related to the behaviour of either natural or artificial radioactivity in the environment. Submissions were received and the successful project will contribute directly to modelling post-accident scenarios in the urban environment, a priority area for the RPII as part of its responsibilities for emergency preparedness. The project will be funded for three years.

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.

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\* RPII staff in conjunction with other authors.



# Corporate Services

## Introduction

The Corporate Services Division includes central financial administration and the support services required to run the organisation. This division is also charged with ensuring compliance with rules of corporate governance and with responding to new Government initiatives aimed at improving efficiency and effectiveness. Key achievements for the year are listed below under the various section headings.

## Corporate Governance

In 2001, the Department of Finance issued a mandatory Code of Practice for the Governance of State Bodies to be applied by all commercial and non-commercial State bodies. In 2006, the RPII continued to implement the Code on a phased basis giving priority to the most immediate requirements. Particular effort was devoted to implementing the recommendations of the review of the performance of the Board which was completed early in the year. An implementation programme was developed in line with the priorities recommended by the consultants under the following headings – role and effective functioning of the Board, skills and experience of Board members and risk management. Progress was made on a number of recommendations and the remaining recommendations will be dealt with in 2007.

The Board oversaw the implementation of the 2006 Business Plan developed in line with the 2005-2007 Strategy Statement. The required annual review of the effectiveness of the system of internal financial control was carried out in 2006 through the Audit Committee and the internal auditor. During the year, the Board reviewed the terms of reference and composition of the Audit Committee and sanctioned the commissioning of consultants to undertake a review of the RPII's financial function, including internal audit, and make recommendations for enhanced efficiency and effectiveness.

The Board approved the introduction of a Performance Related Award for the Chief Executive which is also subject to approval from the Department of Finance. While such approval is awaited, in accordance with the terms of the Scheme, the Board established a performance review sub-committee and carried out a review of the performance of the Chief Executive in 2006.

## Finance

The RPII's income in 2006 was €6.364 million made up of a grant of €3.442 million for current purposes, a grant receivable of €1.204 million for pension purposes as required under FRS 17, and earnings of €1.326 million from licence charges and dosimetry, product certification, radon measurement and other services, and €0.392 of capital grant amortised in the year.

A capital grant of €1.220 million was also received, the bulk of which was to fund the upgrade of the national radiation monitoring network; this project was started in 2006, but will not be completed until 2007. Capital Expenditure in the year amounted to €0.237 million, leaving a balance €0.983 million to be carried over into 2007.

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

With the aim of optimising the efficiency of our financial management, tenders were invited from accountancy firms to undertake a review of the RPII financial function. An accountancy firm was engaged and a thorough review of the financial function was undertaken. The report made a number of recommendations for improved efficiency which were approved by the Board for implementation.

## Prompt Payment of Accounts

The Prompt Payment of Accounts Act came into operation on 2 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 31 December 2006.

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 was one late payment with a value in excess of €317 during 2006 and this exceeded the due payment date by 38 days. The value of this late payment was €19,457.

## Human Resources

2006 saw the drafting of an Employee Handbook which is a compilation of the latest terms and conditions, services and options that apply to all employees of the RPII. This comprehensive document was reviewed by staff via the Partnership process.

An induction manual was developed for use by all managers setting out and standardising the various procedures entailed in the induction of a new member of staff, a recruitment agency temp or visiting student. This includes a check list of information and official documents that must be obtained, health and safety as well as work specific training, and guidelines on mentoring new recruits.

## Staff

Insufficient staff resources, particularly in the administrative area, continued to mean that some functions could not be fulfilled during 2006. A detailed submission was made to our parent Department seeking approval for additional staff to meet growing workloads but to date, this has not been fruitful. In order to achieve delivery of the work programme the staff complement was at all times maximised within the permitted limits and a number of agency staff were engaged on a short term basis throughout the year.

## 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. Currently, eight staff avail of the work-sharing option enabling them to achieve their own personal work-life balance.

## Partnership

The Partnership Committee met on seven occasions during the year with the broad aim of improving the work environment, productivity and service excellence by providing a forum for sharing information, consultation and problem solving on a variety of issues. In 2006, these included:

- progress in implementing the recommendations of the organisation review;
- the Health & Safety review;
- the successor to Sustaining Progress;
- the action plan for the performance verification group under Towards 2016;
- the integration of Performance Management and Development System (PMDS) and Human Resources;

- the operation of Partnership itself and opportunities for training;
- policy on science-based issues;
- the promotions policy;
- initiating a sports and social event;
- eWorking;
- the operation of flexible working hours.

## Health and Safety

2006 saw the first complete year of application of the new Safety Management System. The various elements of the system were implemented throughout the year and the specific objectives that had been set for the year were delivered. The year concluded with the first formal report to the Board on the achievements in this important area.

## Energy Efficiency

In order to save energy by better temperature regulation in our offices, reflective window film was fitted to all windows to reduce summer time thermal gain which in previous years necessitated the use of portable fans and additional air conditioning.

## Information Communication Technologies

Keeping pace with the rapid advances in the ICT environment remains challenging for small organisations such as the RPII. In 2006, consultants were commissioned to carry out a review of ICT and deliver a strategy for moving forward. This review looked at all business processes in detail and made a number of recommendations including infrastructural and organisational changes as well as specific ICT projects. The recommendations will be addressed over the coming three years.

In order to maximise efficiency and cost effectiveness and to ensure a consistent approach to all ICT related projects across the RPII, the ICT review recommended the application of formal project management structure for managing ICT projects. This new structure was immediately adopted and successfully applied to a number of ICT projects that commenced in late 2006. In addition, general improvements in IT services during 2006 included the introduction of a patch management system, the centralisation of all internal intranet services and the installation of additional network cabling points.

## Records Management

The records management system introduced in 2005 continued to be developed and implemented across the organisation. An audit of internal practices was carried out by an archive consultancy, and the findings helped to guide the work programme of the section. A review of existing records was commenced with the aim of identifying and properly managing records of historical importance, vital records and redundant records.

## Library

The Library was staffed on a permanent basis in 2006 and, following a period of training a review of library stock and services was commenced. This will form the basis for developing improved services in the future.

## 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. For example, all of the RPII measurement services are accredited by the Irish National Accreditation Board.

In 2006, the Quality Customer Service (QCS) Working Group published the RPII's first QCS Action Plan which sets out the actions that the RPII will take to enhance the quality of delivery of its services, both externally and internally. The existing Customer Services Charter was revised and published in leaflet form, incorporating a customer comment card. Both of these documents are available on the website and at the RPII offices, and it is intended that they will be posted directly to all customers.



# Members of the Board

Professor E Kennedy was appointed Chairman with effect from 10th August 2006 replacing Dr F Mulligan, who was Chairman for a six-year period ending on 21st February 2006.

The term of office of Ms A Dowling expired on 28th May 2006 and Mr P Gilligan was appointed in her place with effect from 10th August 2006. Dr S Darby resigned as a Board member with effect from 29th November 2006 and Dr N McEniff was appointed in his place with effect from 26th March 2007. The following members, whose terms of office expired during 2006, were reappointed in 2006: Ms D Muckian, Mr F Turvey and Ms A Roche.

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** (from 10th August 2006) 3(3)

**Dr Francis J Mulligan** (to 21st February 2006) 2(2)

## Mr Gregory Burke

*Institute of Food Science and Technology of Ireland* 8(8)

**Professor Kieran Byrne** 1(8)

## Dr Patrick Connellan

*Dental Council* 6(8)

## Dr Seán Darby

*Faculty of Radiologists RCSI* 0(7)

## Ms Anita Dowling

*Association of Physical Scientists in Medicine* 3(3)

**Mr James Fitzmaurice** 8(8)

## Mr Patrick Gilligan

*Association of Physical Scientists in Medicine* 3(3)

## Dr Michael Hurley

*Medical Council* 7(8)

## Dr Lesley Malone

*Irish Nuclear Medicine Association* 7(8)

## Ms Darina Muckian

5(5)

## Ms Adi Roche

7(8)

## Francis J Turvey

5(5)

The total figure for Board remuneration and expenses, in 2006, was €95,550.

## Membership of the Board's Audit Committee

Dr F J Mulligan (Chair until 21st February 2006); Dr P Connellan (appointed Chair from 23rd February 2006); Mr J Fitzmaurice; and Mr P Gilligan (appointed 8th November 2006).



### 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 Gregory Burke

Appointed to the Board in 1997, Mr Burke lectures in the School of Food Science and Environmental Health, Dublin Institute of Technology. He is a former Hon Secretary and a Fellow of the Institute of Food Science and Technology of Ireland. He served as chairman of the RPII's Environmental Radiation Advisory Committee and was a member of its Public Relations Advisory Committee.

### Prof Kieran Byrne (not pictured)

Appointed to the Board in 2003, Prof Byrne is the Director of Waterford Institute of Technology since 2001. He is a graduate of University College Cork, where he obtained his Masters and Doctoral qualifications. He has published nationally and internationally on topics relating to History, Science and Technology, Education, Policy-Making and Planning.





### 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.

### Dr Seán Darby (not pictured)

Appointed to the Board in 2004, Dr Darby is a consultant radiologist. He is a former member of the Board of the Faculty of Radiologists and is chairman of its Radiation Protection committee.

### 4 James Fitzmaurice

Appointed to the Board in 2002, Mr Fitzmaurice is Managing Director of the Bradan Group – publisher of local papers in Wicklow, Kildare and Carlow, also Public Sector Times. Former Chairman of ISME and President of Bray Chamber of Commerce. 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 served as Chairman of the RPII's Public Relations 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.

### 7 Dr Lesley Malone

Appointed to the Board in 1997, Dr Malone is currently Chief Medical Physicist and Radiation Protection Adviser in Beaumont Hospital. Other activities include the education and training of various clinical and scientific professionals in radiation protection and medical imaging, convening the Special Interest Group in Radiation Protection of the Association of Physical Scientists in Medicine and acting as an associate editor for the British Journal of Radiology. Special interests are Nuclear Medicine and patient and staff radiation doses from medical applications.

### 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.

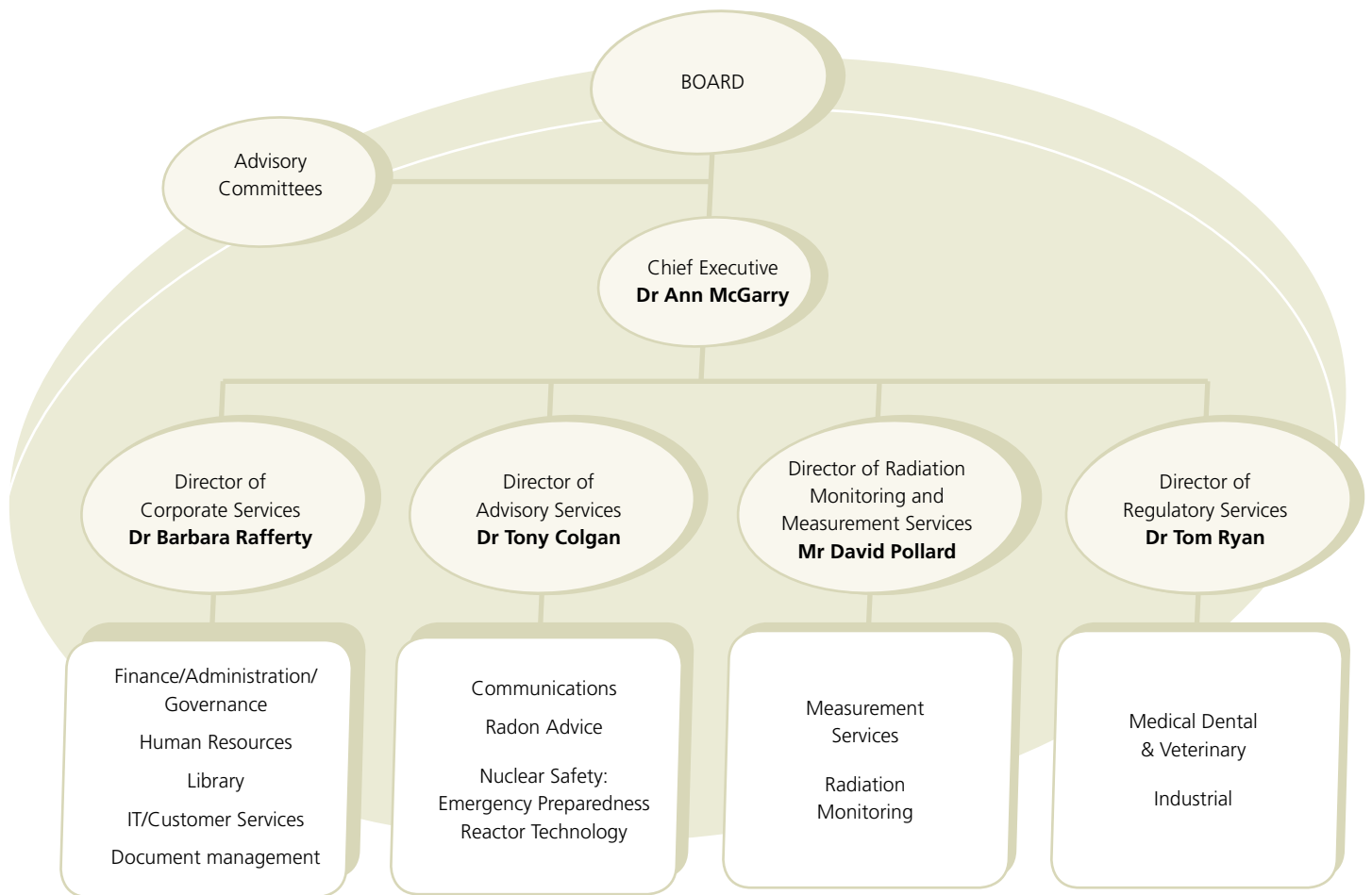
### 9 Adi Roche

Appointed to the Board in 1997, Ms Roche is the Founder of Chernobyl Children's Project International and has worked for the past 15 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



### The RPII Team of 2006

Isabella Bolger	Ciara Maguire	Nancy French	Robert Ryan
Emily Clarke	Leo McKittrick	Teresa Grant	Tom Ryan
Olivia Cluskey	Ciara McMahon	Glenda Griffin	Catherine Scully
Tony Colgan	Ann McGarry	Olwyn Hanley	Kilian Smith
Ashley Curran	Paul McGinnity	Eileen Hayden	Veronica Smith
Lorraine Currvan	Alison McIntyre	Christopher Hone	Caroline Somers
David Dawson	Ailish Murphy	Dermot Howett	Stephen Somerville
Lucy Doody	Michael Murray	Kevin Kelleher	David Spain
Jarlath Duffy	Mairin O'Colmain	Marie Kelly	Hugh Synnott
Mary Fegan	John O'Grady	Tanya Kenny	Rose Timmons
Stephen Fennell	Catherine Organo	Stephanie Long	Sharon Wade
David Fenton	David Pollard	Jack Madden	Jennie Wong
Paul Fitzgerald	Sheila Powell	Barbara Rafferty	

## 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

Ms Louise Diamond (*retired 2006*)

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 (*appointed 2006*)

Dr Ann McGarry

Dr Lesley Malone

Ms Kate Matthews

Dr Michael Moriarty

Dr Geraldine O'Reilly

Prof Wil van der Putten

Dr Tom Ryan

Dr Stephen Skehan

### Public Relations Advisory Committee

This Committee provides advice relating to public relations.

*Chairman* Mr James Fitzmaurice

Mr Gregory Burke

Dr Tony Colgan

Ms Marie Kelly

Dr Ann McGarry





# 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 31 December 2006 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.

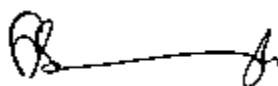
An audit includes examination, on a test basis, of evidence relevant to the amounts and disclosures and regularity of the financial transactions included in the financial statements. It also includes an assessment of the significant estimates and judgements made in the preparation of the financial statements, 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 31 December 2006 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 Smyth**

*For and on behalf of the Comptroller and Auditor General*

17 September 2007

# 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 31 December 2006 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


6 September 2007

# 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*



**Dr Patrick Connellan**  
*Board Member*

6 September 2007

# 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 2006

2005 €		Notes	2006 €
<b>Income</b>			
3,663,000	Oireachtas Grant		4,662,000
1,050,014	Net Deferred Funding for Pensions	7b	1,204,745
(40,443)	Transfer to Capital Account	2	(827,896)
4,672,571			5,038,849
<b>Expenditure</b>			
528,719	Dosimetry & Calibration Service		504,306
296,323	Radon Measurement Service		267,529
301,440	Radiation Monitoring Service		346,837
144,973	Regulatory Service		192,080
(7,003)	Miscellaneous/Contract Income		14,878
1,264,452			1,325,630
5,937,023			6,364,479
2,750,069	Salaries	3	2,981,490
1,018,491	Pensions	7c	1,179,322
93,816	Dosimetry & Calibration Service		131,713
61,623	Radon Measurement Service		49,885
122,448	Radiation Monitoring Service		106,132
55,938	Regulatory Service		70,304
122,192	Communications		136,546
49,618	Nuclear Safety		41,980
20,489	Library & Document Management		41,785
513,762	Accommodation & Insurance	4	457,712
159,887	Travel & Subsistence		181,487
89,717	Recruitment and Training		93,851
76,487	MIS, IT & Customer Service		140,434
88,716	Postage, Phone & Office Supplies		78,346
76,096	Professional Fees & Miscellaneous		98,779
11,950	Audit Fees		12,250
12,082	Bad Debts		0
411,337	Depreciation		389,268
5,734,718			6,191,284
202,305	<b>Surplus/(Deficit) for Year</b>		173,195
412,133	Balance at 1st January		614,438
614,438	Balance at 31st December		787,633

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



**Prof Eugene Kennedy**

Chairman



**Dr Patrick Connellan**

Board Member

6 September 2007

# Statement of Total Recognised Gains and Losses

for the year ended 31st December 2006

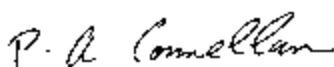
2005 €		Notes	2006 €
202,305	Surplus/(Defecit) for year		173,195
478,000	Experience (Losses)/Gains on pension scheme liabilities		(3,000,000)
(777,000)	Change in assumptions underlying the present value of pension scheme liabilities		181,000
(299,000)	Actuarial (Loss)/Gain on Pension Liabilities (Note 7f)	7f	(2,819,000)
299,000	Adjustments to Deferred Pension Funding		2,819,000
202,305	Total recognised gain/(loss) for the year		173,195

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



**Prof Eugene Kennedy**

Chairman



**Dr Patrick Connellan**

Board Member

6 September 2007

# Balance Sheet

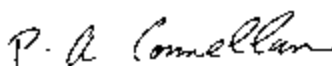
as at 31st December 2005

2005 €		Notes	2006 €
1,162,674	<b>Fixed Assets</b>	1	1,007,520
	<b>Current Assets</b>		
744,785	Cash on Hand & at Bank		1,728,864
387,271	Debtors	8	444,018
1,132,056			2,172,881
	<b>Creditors – amounts falling due within one year</b>		
393,464	Creditors	9	267,320
0	Capital Grant in Advance	10	983,050
124,154	Income in Advance		134,880
517,618			1,385,249
614,438	<b>Net Current Assets</b>		787,632
1,777,112	<b>Total Assets Less Current Liabilities</b>		1,795,153
13,577,000	Deferred Pension Funding	7d	17,600,745
(13,577,000)	Pension Liability	7e	(17,600,745)
1,777,112	<b>Net Assets</b>		1,795,153
	Financed by:		
614,438	<b>Income &amp; Expenditure Account</b>		787,633
1,162,674	<b>Capital Account</b>	2	1,007,520
1,777,112			1,795,153

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



**Prof Eugene Kennedy**  
Chairman



**Dr Patrick Connellan**  
Board Member

6 September 2007

# Notes to the Financial Statements

for the year ended 31st December 2006

## 1. Fixed Assets

	Leasehold Improvements €	Office and Laboratory Furniture and Equipment €	Total €
<b>Cost</b>			
At 1st January 2006	788,301	4,653,475	5,441,776
Additions	0	236,950	236,950
Disposals	0	(66,818)	(66,818)
At 31st December 2006	788,301	4,823,607	5,611,908

### Depreciation

At 1st January 2006	455,313	3,823,789	4,279,102
Charge for year	25,617	363,651	389,268
On disposals	0	(63,982)	(63,982)
At 31st December 2006	480,930	4,123,458	4,604,388

### Net Book Value at

31st December 2005	332,988	829,686	1,162,674
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### Net Book Value at

31st December 2006	307,371	700,149	1,007,520
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During 2006, the Institute reviewed its Register of Fixed Assets and removed items originally costing €66,818 which were no longer in use. With the exception of €2,836, these items were fully depreciated.

## 2. Capital Account

		2006 €
Balance at 1st January 2006		1,162,674
Capital Grants Received in the Year*	1,220,000	
Less: Grant Amortised in the Year	(389,268)	
Unamortised Grant on Assets sold**	(2,836)	
Transferred from Income and Expenditure Account	827,896	
Transferred to Capital Grant in Advance*	(983,050)	(155,154)
Balance at 31st December 2006		1,007,520

\* Capital Expenditure for the Year amounted to €23,950 (€1,220,000 - €983,050).

\*\* The sum of €2,836 was credited back to the Income and Expenditure Account from the Capital Account, being the unamortised Capital in relation to the assets disposed of during the Year.

# Notes to the Financial Statements

## 3. Salaries and Pensions

	2006 €	2005 €
Gross Salaries	2,855,111	2,643,070
Employers P.R.S.I.	126,379	106,999
	2,981,490	2,750,069

The average number of full-time persons employed, excluding Board members, in the financial year was 46 (2005 – 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 1 October 2018. The rental is subject to review at five-yearly intervals. The last such review was 1 October 2003.

### Floor 1, Block 1, 1 Clonskeagh Square

Lease commitments payable in the next twelve months amount to €17,500 on the basis of current rental rates and comprise rental payments on a leasehold interest, the term of which expires on 30 June 2007.

## 5. Capital Commitments

The value of capital commitments authorised at 31 December 2006 amounted to €215,653.

## 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 2006. The financial assumptions used to calculate scheme liabilities under FRS17 are

	At 31/12/2006	At 31/12/2005
Discount rate	4.7%	4.25%
Rate of Expected Salary Increase	4.0%	4.0%
Rate of increase in pension payment	4.0%	4.0%
Inflation	2.25%	2.25%



**b. Net Deferred Funding for Pensions in Year**

	<b>2006 (€'000)</b>	<b>2005 (€'000)</b>
Funding recoverable in respect of Current Year Pension Costs	1,382	1,185
State Grant Applied to Pay Pensions	(177)	(135)
	1,205	1,050

**c. Analysis of total pension costs charged to Expenditure**

	<b>2006 (€'000)</b>	<b>2005 (€'000)</b>
Current service cost	792	624
Interest on Pension Scheme liabilities	590	561
Employee Contributions	(203)	(167)
	1,179	1,018

**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 2006 amounted to €17.601 million (2005 €13.577 million).

**e. Movement in Net Pension Liability during the financial year**

	<b>2006 (€'000)</b>	<b>2005 (€'000)</b>
Net Pension Liability at 1st January	13,577	12,228
Current Service Cost	792	624
Interest Costs	590	561
Actuarial loss/(gain)	2,819	299
Pensions Paid in the year	(177)	(135)
Net Pension liability at 31st December	17,601	13,577

**f. History of experience gains and losses**

	<b>2006</b>	<b>2005</b>
Experience (gains)/losses on scheme liabilities amount (€'000)	3,000	(478)
Percentage of the present value of scheme liabilities	17%	(3%)
Total Amount recognised in STRGL (€'000)	2,819	299
Percentage of the present value of scheme liabilities	16%	2%

# Notes to the Financial Statements

## 8. Debtors

	2006 €	2005 €
Debtors for Services	267,442	201,581
Bad Debts Provision	(9,433)	(12,082)
Prepayments	186,009	197,772
	444,018	387,271

## 9. Creditors

	2006 €	2005 €
Accruals	265,776	387,492
Collector General	1,544	5,972
	267,320	393,464

## 10. Capital Grant in Advance

The Institute received a Capital Grant in respect of a project that could not be completed during 2006. At December 2006, a balance of €983,050 remained to be expended during 2007, and this is shown as Capital Grant in Advance.

## 11. Approval of Financial Statements

The financial statements were approved by the Board on 6 September 2007.