

MIKE THORNE AND ASSOCIATES LIMITED

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MICHAEL CHARLES THORNE

Qualifications PhD FSRP
Year of birth 1950
Nationality British

PROFESSIONAL ACTIVITIES AND MEMBERSHIP

Visiting Fellow at the Climatic Research Unit, School of Environmental Sciences, University of East Anglia
Fellow of the Society for Radiological Protection and a Past President of the Society
Member of the Editorial Board of the Journal of Radiological Protection
Member of the National Dose Assessment Working Group (NDAWG) and Chairman of the Habits Subgroup
Member of the Eco-ethics International Union
Consultant to the Institute for Energy and Environmental Research, Washington DC.
Quintessa Associate
Director, Mike Thorne and Associates Limited

ACADEMIC RESPONSIBILITIES

Formal supervision of two PhD students at the University of East Anglia:
P Burgess, Future Climatic and Cryospheric Change on Millennial Timescales: An Assessment using Two-dimensional Climate Modelling Studies, PhD awarded 1998.
M Hoar, Reconstructing Climate Gradients across Europe for the Last Glacial-interglacial Cycle, PhD awarded 2004.
Informal supervision of PhD students at the University of Edinburgh (development and retreat of ice sheets) and at Imperial College of Science, Technology and Medicine (radionuclide transport in vegetated soil columns – experimental studies and modelling interpretations).
Teaching on the MSc course on Environmental Radioactivity at the University of Surrey.
Teaching on the MSc course in Environmental Technology at Imperial College of Science, Technology and Medicine.
Supervision of Post-doctoral research activities at the Universities of East Anglia; University of Newcastle and Imperial College of Science, Technology and Medicine on behalf of various commercial clients.

CAREER HISTORY (Selection of Projects)

Mike Thorne and Associates Limited, 2001 onward

Development of Proposals for Setting Radiation Protection Standards based on Consideration of More Sensitive Individuals in a Population

Client – Institute for Energy and Environmental Research, Washington DC

Overall project review and development of techniques for calculating radiation doses to the early embryo from internally incorporated radionuclides.

Review of Impacts of Coastal Erosion at Hunterston

Client – ERM Limited

Evaluation of the potential radiological implications of coastal erosion on the VLLW pits at Hunterston Nuclear Power Station.

Advice on Dose Reconstruction

Client – S A Cohen & Associates for NIOSH

Advice on dose reconstructions for workers at DOE facilities from 1941 onward.

Advice on Effects of Radionuclides on Organisms other than Man

Client – Nuclear Safety Solutions Limited, Canada

Provision of guidance on dosimetry, reference levels and effects relevant to selected protected species.

Participation in Safety Assessment Studies for the Baita Bihor Repository, Romania

Client – Quintessa/for the European Union

Compilation of inventory data, shielding studies and development of both operational and post-closure safety cases.

Review of the Yucca Mountain Project

Client – State of Nevada

Co-ordination of technical activities involved in a review of the proposed License Application by US DOE for disposal of radioactive wastes at Yucca Mountain.

Co-ordination of biosphere research and participation in BIOCLIM

Client – UK Nirex Ltd

Co-ordination of research on climate change, ice-sheet development, near-surface hydrology and radionuclide transport, as well as participation in an international programme on the implications of climate change for radioactive waste disposal. Also includes development of new models for radionuclide transport in the biosphere and for the gas pathway.

Development of a Handbook on Radionuclide Behaviour in the Environment

Client – Serco Assurance

Development of a handbook for Environment Agency staff outlining the behaviour of a wide variety of radionuclides in terrestrial and aquatic environments.

Development of a Simplified Dose Assessment Model

Client – Serco Assurance

Development of a simplified spreadsheet-based dose assessment tool for use by Environment Agency staff in determining Authorisations.

Provision of Biosphere Advice

Client – Ciemat, Spain

Provision of advice on models and data relevant to geological disposal of radioactive wastes

Provision of Advice on Safety

Client – NNC Ltd/Defra

Provision of expert advice to the UK Committee on Radioactive Waste Management (CoRWM).

Effects of Radiation on Organisms Other Than Man

Client – AEA Technology/Serco Assurance

Study for ANDRA to identify appropriate indicator organisms and develop appropriate dosimetry and effects models for those organisms.

Member of the Site Investigation Expert Review Group (SIERG)

Client – SKB

Oversight reviews of site investigation activities and the associated research and assessment programmes.

Advice on the Short-, Medium- and Long-term Effects of Climate Change on Nuclear Licensed Sites

Client – BNFL and Nexia Solutions

Interpretation of results from the international BIOCLIM project in relation to decommissioning and solid radioactive waste management, with particular emphasis on the potential significance of sea-level changes. Review of information on coastal vulnerabilities at NDA sites.

Advice on Submarine Reactor Accidents and the Development of Detailed Emergency Planning Zones

Client – Electrowatt-Ekono

Assistance to MoD in revising emergency planning criteria in the light of recent changes of views on Emergency Reference Levels and other technical developments.

Review of Continuing Operational Safety Cases

Client – Electrowatt-Ekono

Review of COSRs developed by BNFL for contaminated land.

Development of a New Soil-Plant Model for use in Radiological Assessments

Client – Food Standards Agency/Quintessa

Development of the specification for a new soil-plant model (PRISM) to replace that implemented in the SPADE suite of codes (implementation of the model has been by Quintessa) and extension of that work to new models for ^3H and ^{14}C .

Review of Probabilistic Safety Assessment and Criticality Issues relating to a Proposed Surface Storage Facility for Spent Nuclear Fuel

Client – State of Utah

Review of the potential for criticality in breached storage casks and of the probability of breaching by aircraft impacts. Also, supervision of various criticality and radiation shielding calculations.

Development of Models for Radionuclide Transfers to Sewage Sludge and for Evaluating the Radiological Impact of Sludge applied to Agricultural Land

Client – Food Standards Agency

Includes a review of literature and the development and implementation of probabilistic models for such transfers.

Development of Biokinetic Models for Radionuclides in Animals

Client – Serco Assurance

Development of updated biokinetic models for use by the Food Standards Agency in their SPADE and PRISM modelling systems.

Review Studies for the Proposed Australian National Radioactive Waste Repository

Client – RWE NUKEM

Reviews of reports on animal transfer factors and of the potential effects of climate change on the repository plus development of a model for the biokinetics of the ^{226}Ra decay chain in grazing animals.

Development and Application of a Model for Assessing the Radiological Impacts of ^3H and ^{14}C in Sewage Sludge

Client – NNC Ltd

Development of a model based on physical, chemical and biochemical principles for the uptake of ^3H and ^{14}C into sewage sludge and their subsequent distribution and transport after application of the sludge to agricultural land.

Support for development of the Drigg Post-closure Radiological Safety Assessment

Client - BNFL

Support in the areas of FEP analysis, biosphere characterisation, human intrusion assessment and the effects of natural disruptive events. In addition, provision of advice of future research initiatives that should be pursued by BNFL.

Review of Parameter Values

Client – AEA Technology/Serco Assurance

Review of biosphere parameter values for use in the ANDRA assessment model AQUABIOS.

Development of a Database related to Emergency Planning

Client – AEA Technology (Rail)

Identification of relevant international, overseas and national legislation, regulations and guidance, and production of brief summaries of the documents.

Dose Reconstruction for Workers on a Uranium Plant

Client - McMurry and Talbot

Dose reconstruction for the plaintiffs in a case relating to the Paducah Gaseous Diffusion Plant.

Dose Reconstruction for a Worker Exposed to Pu and Am

Client – Pattinson and Brewer

Dose reconstruction for a worker exposed by a puncture wound in the finger while working at a glove box.

AEA Technology, 1998-2001

***Revision of Exemption Orders Made Under the Radioactive Substances Act
Client – DETR***

Review of requirements for revision and preparation of a draft text for the purposes of consultation.

***Assessment of Remediation Options for Uranium Liabilities in Eastern Europe
Client - European Commission***

Studies of remediation requirements relating to mines, waste heaps and hydrometallurgical plant in Bulgaria, Slovakia and Albania.

***Evaluation of Unusual Pathways for Radionuclide Transport from Nuclear Installations
Client – Environment Agency***

Review of literature and conduct of formal elicitation meetings to determine potential pathways and evaluate their radiological significance.

***Support Studies on the Drigg Post-closure Performance Assessment
Client - BNFL***

Support in the areas of FEP analysis, biosphere characterisation, human intrusion assessment and the effects of natural disruptive events. In addition, provision of advice of future research initiatives that should be pursued by BNFL.

***Development of Models for the Biokinetics of H-3, C-14 and S-35 in Farm Animals
Client - FSA***

Review of relevant literature, development of appropriate biokinetic models and implementation in stand-alone software.

***Integration of Aerial and Ground-based Monitoring in the Event of a Nuclear Accident
Client - FSA***

Desk-based review and simulation study designed to determine optimum monitoring strategies for different types of accidents.

***Elicitation of Parameter Values for use in Radiological Impact Assessment Models
Client - FSA***

Expert elicitation study to provide distributions of parameter values for use in the suite of assessment models currently used by the FSA for routine and accidental releases.

Biosphere Research Co-ordination and Assessment Studies

Client - United Kingdom Nirex Ltd

Continuation of a programme of work originally undertaken at Electrowatt Engineering (UK) Ltd

Site Investigation and Risk Assessment - Hilssea Lines

Client - Portsmouth City Council

Radiological assessment of a radium-contaminated site.

Electrowatt Engineering (UK) Ltd, 1987-1998

Development of a Siting Policy for Nuclear Installations: Harbinger Project and Follow-up Study

Client - HSE/NSD

Review of existing policy and development of alternatives as a precursor to application to a wide range of installations, not restricted to commercial reactors.

Support to the Rock Characterisation Facility Public Enquiry

Client - UK Nirex Ltd

Preparation of position papers and rebuttals of evidence.

Rongelap Resettlement Project

Client - Marshall Islands Government

Participation in an oversight committee evaluating the radiological safety of Rongelap in the context of resettlement by its evacuated community.

Evaluation of Inhalation Doses from Uranium

Client - Baron & Budd

Provision of expert witness support in a class action relating to environmental exposure from a uranium plant.

Biosphere Studies Relating to Drigg

Client - BNFL

Provision of advice on time-dependent biosphere modelling for the Drigg low-level radioactive waste disposal facility.

Radiation Doses to an Individual as a Consequence of Working on the San Onofre Nuclear Power Plant

Client - Howarth & Smith

Interpretation of personal and area monitoring data for legal purposes.

***Interpretation of Uranium in Urine Data for the Fernald, Ohio Feed Materials Processing Center
Client - Institute for Energy and Environmental Research***

Interpretation of urinalysis and lung counting data, and appearance as an expert witness in the associated trial.

***Determination of Failure Probabilities for use in PRA
Client - Nuclear Installations Inspectorate***

Development of new approaches to the use of Bayes Theorem in defining component failure probabilities for use in PRA when statistics on actual failures are limited.

***Review of Inventory Information
Client - UK Nirex Ltd***

Review of uncertainties in inventories of individual radionuclides.

***ALARP Study of Options for the Treatment, Packaging, Transport and Disposal of Plutonium Contaminated Material
Client - UK Nirex Ltd***

Use of multi-attribute utility analysis to establish which option is preferred.

***Expert Judgement Estimation of Intrusion Model Parameters
Client - British Nuclear Fuels plc***

Project Manager of a study assessing the risks of human intrusion into Drigg radioactive disposal site using expert judgement techniques.

***Brainstorming Study of Risks Associated with Building Structures
Client - Building Research Establishment***

Participation in a classification study of the health risks associated with buildings including both injuries and disease.

***Radiological Consequences of Deferred Decommissioning of Hunterston A
Client - Scottish Nuclear Ltd***

Project Manager of a study of the radiological impacts of groundwater transport of radionuclides, releases to atmosphere and intrusion.

***Reviews of Safety Documentation
Client - UK Nirex Ltd***

Review of safety related documentation for Packaging and Transport Branch.

The Sheltering Effectiveness of Buildings in Hong Kong

Client - Ove Arup & Partners

Project Manager of a study evaluating the shielding effectiveness of all types of building in Hong Kong for volume sources of photons in air and surface deposition sources.

Assessment of the Radiological Impact of Releases of Radionuclides from Premises other than Licensed Nuclear Sites

Client - Ministry of Agriculture, Fisheries and Food

Project Manager of a study to identify representative premises, obtain data on their releases of radionuclides and assess radiological impacts using a new methodology developed for the project.

Assessment of the Radiological Implications of Uranium and its Radioactive Daughters in Foodstuffs

Client - Ministry of Agriculture, Fisheries and Food

Project Manager of a review study of concentrations of uranium and its daughters in foodstuffs, taking local and regional variations in uranium concentrations in soils, sediments and waters into account.

Radionuclides in Sewage

Client - Her Majesty's Inspectorate of Pollution

Project Manager of a study including a desk review on alternative methods of disposal of sewage sludges, interpretation of monitoring data relating to radionuclide discharges from Amersham International to the public sewer system, development of a model for radionuclide transport in sewers, and collection and analysis of effluent, foul water, sediment, sludge and other samples suitable for use in model validation studies.

Accident Consequence Calculations

Client - Nuclear Installations Inspectorate

Project Manager of a study to assess the radiological consequences of various atmospheric releases using the MARC code.

Definition of Threshold Recording Levels for Drums of ILW

Client - UK Nirex Ltd

Project Manager of a study of the implications of post-closure radiological impacts of radioactive waste disposal in defining Threshold Recording Levels for radionuclides in individual waste drums.

Definition of Expert Judgment Exercises Relating to Nuclear Safety

Client - Commission of the European Communities

Project Manager for a study defining expert judgment exercises relating to conceptualisation, representation and input data specification. Included a comprehensive review of available formal expert judgment procedures, and mathematical and behavioural aggregation techniques.

Definition of Research Requirements Relating to the Use of Expert Judgment in Parameter Value Elicitation for Reactor Safety Studies in a UK Context

Client - Nuclear Safety Research Management Unit, HSE

Development of proposals for using combined behavioural and mathematical aggregation procedures in formal elicitation of expert judgment.

Development Priorities for the Drigg Technical Development Programme

Client - British Nuclear Fuels plc

Provision of detailed advice to BNFL on future design options, and research and development priorities, in relation to radioactive waste disposal at Drigg.

Channel Tunnel Safety Studies

Client - Channel Tunnel Safety Authority

Provision of advice and guidance on safety criteria appropriate to the Fixed Link, on the classes of Dangerous Goods that may properly be carried and on the overall characteristics of the proposed Safety Case.

Development of Societal Risk Criteria

Client - Marathon Oil

Interpretation of F-N curves in the context of the offshore oil/gas industry, taking risk aversion into account.

Impacts of Salt Dispersal on Plant Communities

Client - Sir William Halcrow

Evaluation of salt dispersal from a major road in winter in relation to adjacent Sites of Special Scientific Interest.

Offsite Consequence Assessments

Client - Nuclear Electric

Studies of the offsite radiological impacts of atmospheric and liquid releases of radioactive materials from Magnox stations.

Dry Run 3

Client - Her Majesty's Inspectorate of Pollution

Uncertainty and bias studies involving formal expert judgment procedures to develop a conceptual model of those factors and interrelationships which are of significance in determining the post-closure radiological impact of a deep geological repository for radioactive wastes. This project also included advice on data and models to be used for post-closure radiological assessments.

***Radiological Assessments of Drigg
Client - British Nuclear Fuels plc***

Project Manager for post-closure radiological impact assessments of the Drigg LLW disposal site. Also included specification and development of computer codes relating to the radiological impact of fires, releases of radioactive gases produced by microbial action and metal corrosion, and human intrusion.

***Biosphere Co-ordination
Client - UK Nirex Ltd***

Co-ordination of the UK Nirex Ltd Biosphere Research Programme from its inception, including requirements definition, technical management of all projects and QA surveillance as the Client's Representative.

***Biosphere Support for the Nirex Disposal Safety Assessment Team
Client - AEA Technology***

Development of approaches for assessing the radiological impact of releases of radionuclides to the biosphere, plus advice on radiological protection criteria, definition of individual risk, implications of conventionally toxic chemicals in wastes and a variety of other matters.

***Evaluation and Radiological Assessment of Liquid Effluent Releases from Various Premises
Client - Her Majesty's Inspectorate of Pollution***

Reviews of monitoring data and evaluations of radiological impact, primarily related to Harwell, Aldermaston, Capenhurst and Amersham International.

***Evaluation of the Radiological Impact of Overseas Nuclear Accidents
Client - Her Majesty's Inspectorate of Pollution***

Studies of the impact of potential overseas nuclear accidents on the UK, with emphasis on survey and monitoring requirements, and the selection of appropriate radiation detection equipment for monitoring.

***Bilthorpe Power Station
Client - British Coal/East Midlands Electricity***

Preparation of an Environmental Statement with emphasis on atmospheric dispersion of SO₂ and NO_x.

***Gas Generation in Radioactive Waste Disposal Facilities
Client - AEA Technology***

Development of a coupled microbial degradation and corrosion model for gas generation in repositories for LLW and ILW.

Effects of Chernobyl on Drinking Water Supplies

Client - Her Majesty's Inspectorate of Pollution

Evaluation of the radiological implications of enhanced concentrations of radionuclides in water supplies in England and Wales subsequent to the Chernobyl accident.

Sea Disposal of Radioactive Wastes

Client - UK Nirex Ltd

Participation in an Environmental Impact Assessment of the proposed resumption of sea-dumping of radioactive wastes.

UK Research Related to Radioactive Waste Management

Client - Her Majesty's Inspectorate of Pollution

Identification of gaps in the UK national research effort related to radioactive waste management.

Research Requirements for Repository Design and Site Investigations

Client - UK Nirex Ltd

Review of research requirements for repository design and site investigations in relation to LLW and ILW disposal in near-surface and deep repositories.

International Commission on Radiological Protection, Sutton, Surrey, England, 1985-1986

Scientific Secretary responsible for arranging and minuting meetings, administrative arrangements, technical review of reports, editing of the Commission's journal, liaison with other international organisations and public relations.

ANS Consultants Ltd, Epsom, Surrey, England, 1979-1985

Reviews of data on the distribution at transport of radionuclides in terrestrial and aquatic ecosystems (see publications list).

Development of a dynamic model for radionuclide transport in agricultural ecosystems and implementation of the model on various microcomputer systems.

Photon and neutron shielding studies of radiochemical plant, together with area classification and ALARA studies.

A review of UK use of the criticality code MONK and other approaches to criticality safety assessment.

Radiological and conventional safety aspects of Magnox reactor decommissioning.

Development of metabolic models for inclusion in ICRP Publication 30.

Development of pharmacodynamic models for toxic chemicals.

Review of neutron activation analysis in studies of radionuclide transport in soils and plants.

Experimental studies on radionuclide transport in soils and plants using various photon-emitting radionuclides.

Support for DoE work on probabilistic risk assessment of LLW and ILW disposal.

Review of UK research requirements for HLW disposal.

Post-closure radiological impact assessment of the proposed LLW and ILW facility at Elstow, Bedfordshire.

Development of a generalised biosphere model for use in probabilistic risk assessments of solid radioactive waste disposal.

Initial development of a mathematical model for use in assessing the radiological impact of contaminated groundwater.

Development, computer implementation and comprehensive documentation of a model to calculate the radiological impact of intrusion into radioactive waste repositories.

Development of a general-purpose computer code for solving first-order differential equations using a hybrid Predictor-Corrector/Runge-Kutta method.

Studies on the potential radiological consequences of Magnox reactor accidents.

Medical Research Council Radiobiology Unit, Chilton, Didcot, Oxon, England, 1974-1979

Development of dosimetric and metabolic models for use in ICRP Publication 30.

Studies on the metabolism of plutonium in bone and relationships to blood flow.

Theoretical studies on radionuclide metabolism and dosimetry.

Development of techniques in neutron-induced autoradiography and alpha imaging.

Image analysis studies of plutonium in bone, uranium in lungs, lysosomal inclusions in cells and heterochromatin.

Studies on the clearance of inhaled UO₂.

Alpha spectroscopy in support of toxicity studies with Ra-224.

Data analysis in connection with experimental animal studies on the potential efficacy of neutron therapy using 42 MeV neutrons.

University of Sheffield, 1971-1974

Experimental studies on the reaction $\gamma + p \rightarrow \pi^0 + p$ at photon energies between 1 and 3 GeV, using a linearly polarised photon beam.

SELECTION OF PUBLICATIONS

A measurement of the beam asymmetry parameter for neutral pion photoproduction in the energy range 1.2 - 2.8 GeV. P.J. Bussey, C. Raine, J.G. Rutherglen, P.S.L. Booth, L. Carroll, G.R. Court, A.W. Edwards, R. Gamet, C.J. Hardwick, P.J. Hayman, J.R. Holt, J.N. Jackson, J. Norem, W.H. Range, F.H. Combley, W. Galbraith, V.H. Rajaratnam, C. Sutton and M.C. Thorne. London Conference (1974) Abstract 997.

The measurement of the polarisation parameters S, P and T for positive pion photoproduction between 500 and 1700 MeV. P.J. Bussey, C. Raine, J.G. Rutherglen, P.S.L. Booth, L.J. Carroll, P.R. Daniel, C.J. Hardwick, J.R. Holt, J.N. Jackson, J.H. Norem, W.H. Range, F.H. Combley, W. Galbraith, V.H. Rajaratnam, C. Sutton, M.C. Thorne and P. Waller. Nuclear Physics, B104, (1976) 253-276.

The polarised beam asymmetry in photoproduction of eta mesons from protons 2.5 GeV and 3.0 GeV. P.J. Bussey, C. Raine, J.G. Rutherglen, P.S.L. Booth, L.J. Carroll, P.R. Daniel, A.W. Edwards, C.J. Hardwick, J.R. Holt, J.N. Jackson, J. Norem, W.H. Range, W. Galbraith, V.H. Rajaratnam, C. Sutton, M.C. Thorne and P. Waller. Physics Letters, 61B, (1976) 479-482.

Aspects of the dosimetry of plutonium in bone. M.C. Thorne. Nature, 259, (1976) 539-541.

The toxicity of Sr-90, Ra-226 and Pu-239. M.C. Thorne and J. Vennart. Nature 263, (1976) 555-558.

Radiation dose to mouse testes from Pu-239. D. Green, G.R. Howells, E.H. Humphreys and J. Vennart with Appendix by M.C. Thorne. Published in "The Health Effects of Plutonium and Radium", Ed. W.S.S. Jee, (J.W. Press, Salt Lake City, Utah, 1976).

The distribution and clearance of inhaled uranium dioxide particles in the repository tract of the rat. Donna J. Gore and M.C. Thorne. In "Inhaled particles IV", Ed. W.H. Walton, (Pergamon Press, Oxford, 1977) pp. 275-284.

Theoretical aspects of the distribution and retention of radionuclides in biological systems. M.C. Thorne. J. Theor. Biol., 65, (1977) 743-754.

Aspects of the dosimetry of emitting radionuclides in bone with particular emphasis on Ra-226 and Pu-239. M.C. Thorne. Phys. Med. Biol., 22, (1977) 36-46.

A new method for the accurate localisation of Pu-239 in bone. D. Green, G. Howells and M.C. Thorne. Phys. Med. Biol., 22, (1977) 284-297.

The measurement of blood flow in mouse femur and its correlation with Pu-239 deposition. E.R. Humphreys, G. Fisher and M.C. Thorne. Calcif. Tiss. Res., 23, (1977) 141-145.

The distribution of plutonium-239 in the skeleton of the mouse. D. Green, G.R. Howells, M.C. Thorne and J. Vennart. In "Proceedings of the IVth International Congress of the International Radiation Protection Association Vol. 2 (Paris 1977).

The visualisation of fissionable radionuclides in rat lung using neutron induced autoradiography. D.J. Gore, M.C. Thorne and R.H. Watts. *Phys. Med. Biol.*, 23 (1978) 149-153.

Lymphoid tumours and leukaemia induced in mice by bone-seeking radionuclides. J.F. Loutit and T.E.F. Carr with an appendix by M.C. Thorne. *Int. J. Radiat. Biol.*, 33, (1978) 245-263.

Plutonium-239 deposition in the skeleton of the mouse. D. Green, G.R. Howells and M.C. Thorne. *Int. J. Radiat. Biol.*, 34, (1978) 27-36.

Imaging of tissue sections on Lexan by alpha-particles and thermal neutrons; an aid in fissionable radionuclide distribution studies. D. Green, G.R. Howells, M.C. Thorne and R.H. Watts. *Int. J. Appl. Radiat. Isotopes*, 29, 285-295 (1978).

Analytical techniques for the analysis of multi-compartment systems. M.C. Thorne. *Phys. Med. Biol.*, 24, 815-817 (1979).

The initial deposition and redistribution of Pu-239 in the mouse skeleton: implications for rodent studies in Pu-239 toxicology. D. Green, G.R. Howells and M.C. Thorne. *Br. J. Radiol.*, 52, 426-427 (1979).

Bran and experimental colon cancer. M.C. Thorne. *Lancet*, ii, 13 January 1979, p.108.

Quantitative microscopic studies of the distribution and retention of Pu-239 in the ilium of the female CBA mouse. D. Green, G.R. Howells and M.C. Thorne. *Int. J. Radiat. Biol.*, 36, 499-511 (1979).

Techniques for studying the distribution of alpha emitting and fissionable radionuclides in histological lung sections. T. Jenner and M.C. Thorne. *Phys. Med. Biol.*, 25, 357-364 (1980).

Morphometric studies of mouse bone using a computer-based image analysis system. D. Green, G.R. Howells and M.C. Thorne. *J. Microscopy*, 122, 49-58 (1981).

A semi-automated technique for assessing the microdistribution of ^{239}Pu deposited in bone. D. Green, G.R. Howells and M.C. Thorne. *Phys. Med. Biol.*, 26, 379-387 (1981).

Radionuclide distribution and transport in terrestrial and aquatic ecosystems, Volumes 1 to 6. P.J. Coughtrey, M.C. Thorne et al. A.A. Balkema, Rotterdam 1983-1985.

Dynamic models for radionuclide transport in soils, plants and domestic animals. M. C. Thorne and P. J. Coughtrey. In: *Ecological Aspects of Radionuclide Release* (Ed. P. J. Coughtrey). British Ecological Society Special Publication No. 3, Blackwell, Oxford, 1983.

Studies on the mobility of radioisotopes of Ce, Te, Ru, Sr and Cs in soils and plants. P.J. Coughtrey, M.C. Thorne, D. Jackson and G.F. Meekings. In: CEC Symposium on the Transfer of Radioactive Materials in the Terrestrial Environment Subsequent to an Accidental Release to Atmosphere. Dublin, April 1983.

A study of the sensitivity of a dynamic soil-plant-animal model to changes in selected parameter values. M.C. Thorne, P.J. Coughtrey and G.F. Meekings. In: CEC Symposium on the Transfer of Radioactive Materials in the Terrestrial Environment Subsequent to an Accidental Release to Atmosphere. Dublin, April 1983.

Microdosimetry of bone: implications in radiological protection. M.C. Thorne. In: Metals in Bone, N.D. Priest (Ed.) MTP Press, Lancaster (1985), pp. 249-268.

Non-stochastic effects resulting from internal emitters: dosimetric considerations. M.C. Thorne. J. Soc. Rad. Prot., 6 (1986).

Pharmacodynamic models of selected toxic chemicals in man. Vol. 1. Review of metabolic data. M.C. Thorne, D. Jackson and A.D. Smith. MTP Press, Lancaster, 1986.

Pharmacodynamic models of selected toxic chemicals in man. Vol. 2. Routes of intake and implementation of pharmacodynamic models. A.D. Smith and M.C. Thorne. MTP Press. Lancaster 1986.

Generalised computer routines for the simulation of linear multi-compartment systems. D.Jackson, A.D. Smith, M.C. Thorne and P.J. Coughtrey. Environmental Software, 2 (1987), 94-102.

The demonstration of a proposed methodology for the verification and validation of near field models. J-M. Laurens and M.C. Thorne. In: Proceedings of an NEA Workshop "Near-field Assessment of Repositories for Low and Medium Level Radioactive Waste". pp. 297-310. NEA/OECD, Paris, 1987.

Principles of the International Commission on Radiological Protection System of Dose Limitation. Br. J. Radiol., 60 (1987), 32-38.

The origins and work of the International Commission on Radiological Protection. H. Smith and M.C. Thorne. Invest. Radiol., 22 (1987), 918-921.

The potential for irradiation of the lens and cataract induction by incorporated alpha-emitting radionuclides. D.M. Taylor and M.C. Thorne. Health Phys., 54 (1988), 171- 179.

Forum on alpha-emitters in bone and leukaemia: Introduction and commentary. M.C. Thorne. Int. J. Radiat. Biol., 53 (1988), 521-539.

Radiological protection and the lymphatic system: The induction of leukaemia consequent upon the internal irradiation of the tracheo-bronchial lymph nodes and the gastrointestinal tract wall. K.F. Baverstock and M.C. Thorne. Int. J. Radiat. Biol., 55 (1989), 129-140.

The Biosphere: Current Status. NSS/G106. M.C. Thorne. Available from UK Nirex Ltd, Curie Avenue, Harwell, 1989.

The development of an overall assessment procedure incorporating an uncertainty and bias audit. M. C. Thorne and J-M. Laurens. Proceedings of an International Symposium on Safety Assessment of Radioactive Waste Repositories. OECD Paris (1990), 673-681.

Implications of environmental change for biosphere modelling: work for UK Nirex Ltd. M.C. Thorne. Proceedings of an International Symposium on Safety Assessment of Radioactive Waste Repositories. OECD Paris (1990), 860-865.

The Biosphere: Current Status, December 1989. NSS/G114. M.C. Thorne. Available from UK Nirex Ltd, Curie Avenue, Harwell, 1990.

The Nirex Overview. M.C. Thorne and D. George. In: Future Climate Change and Radioactive Waste Disposal: Proceedings of an International Workshop. C.M. Goodess and J.P. Palutikof (Eds). NSS/R257. Available from UK Nirex Ltd, Curie Avenue, Harwell, 1991.

A review of expert judgment techniques with reference to nuclear safety. M. C. Thorne and M. M. R. Williams, Progress in Nuclear Energy, 27 (1992), 83-254.

NSARP Reference Document: The Biosphere, January 1992. Nirex Report No. NSS/G119 M.C. Thorne. 1993.

The use of expert opinion in formulating conceptual models of underground disposal systems and the treatment of associated bias. M.C.Thorne, Journal of Reliability Engineering and Systems Safety, 42 (1993), 161-180.

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