



**NDAWG**  
National Dose Assessment Working Group

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*NDAWG/2/2010*

*References relating to the work of  
NDAWG, 2009*

Version 1

*NDAWG*

The views presented in this paper are those of the authors in consultation with members of NDAWG. They represent the views of the majority of members of NDAWG but do not necessarily reflect the views of the organisations from which the members are drawn.





# CONTENTS

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<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Documents providing guidance</b>	<b>2</b>
2.1.	Completed work	2
2.2.	Ongoing work	3
2.3.	Planned work	4
<b>3</b>	<b>Documents describing dose assessments methodologies</b>	<b>4</b>
3.1.	Completed work	4
3.2.	Ongoing work	7
3.3.	Planned work	7
<b>4</b>	<b>Documents describing assessment studies</b>	<b>7</b>
4.1.	Completed work	7
4.2.	Ongoing work	9
4.3.	Planned work	10
<b>5</b>	<b>Documents describing sources of data, research and development</b>	<b>10</b>
5.1.	Annual publications	10
5.2.	Completed work	10
5.3.	Ongoing work	15
5.4.	Planned work	16

## 1 Introduction

The National Dose Assessment Working Group (NDAWG) was established in the UK in 2002. The aim of NDAWG is to bring together people and organisations with responsibility for, and/or an interest in, the assessment of radiation doses from the operation of the nuclear industry and from minor users of radioactivity. The main focus of the work of NDAWG is past, present and future authorised discharges and direct radiation; initially the Group's scope does not include accidents or solid waste disposal. Membership of the group is by invitation and is drawn from regulators and Government agencies, industry, non-Governmental organisations and specialists. Further information on the work of NDAWG, including the current membership, is available on the website ([www.ndawg.org](http://www.ndawg.org)).

Up until 2009 members of NDAWG maintained a document which recorded research papers dealing with dose assessments. This document not only included work that had been completed but also planned work of which members were aware and which fell within the remit of NDAWG. Over the years that this document has been available on the website it has proved to be a popular source of information to both members of NDAWG and to others seeking information on radiation dose assessment.

At a meeting of NDAWG in November 2008 it was decided that this research report should be updated, not only with regard to the information which it contained but to also in the way it was presented. A document was prepared for the NDAWG meeting in April 2009 and this report represents the culmination of discussions held with NDAWG members at that meeting.

It is intended to publish this report every year so that it is consistently up to date. The information within it is based on contributions sent by members of NDAWG to the secretariat. Although care has been taken to include all significant documents that relate to the assessment of doses from routine releases of radiation in the UK, it is recognised that producing an exhaustive list would be impossible. However, it is felt that this document represents an important record of current and past developments within this area and is a good starting point for anyone interested in obtaining information on that topic.

The references within this report are divided into sections to help readers find what they are looking for easily. Although the sections used are broad it is recognised that some references could fall under more than one header. In this case the reference was placed in the section thought most appropriate; duplicating entries was not done to keep the length of the report to a minimum.

The references within this report are listed in chronological order with the most recent material being listed first within each section.

It is acknowledged that links to website change with time and if a link given in this report does not work then the reader is first directed to the webpage of the relevant organisation (for the HPA this is <http://www.hpa.org.uk/HPA/Publications/Radiation/>, for the Environment Agency this is <http://environment-agency.resultspage.com/search?p=Q&ts=ev2&w=radiation>, for DECC this is <http://www.decc.gov.uk/en/content/cms/publications/publications.aspx>, for CEFAS this is <http://www.cefasc.co.uk/publications.aspx>, for the Food Standards Agency this is <http://www.food.gov.uk/aboutus/publications/>). If any problems with the information within this report are found then please contact the secretariat of NDAWG at [ndawg@hpa.org.uk](mailto:ndawg@hpa.org.uk).

## 2 Documents providing guidance

It should be noted that separate guidance notes and reports from NDAWG itself are available on the NDAWG website. These are not included here as this document is concerned with guidance published by organisations other than NDAWG.

### 2.1. Completed work

Title	Application of the 2007 Recommendations of the ICRP to the UK
Authors (and affiliations)	JR Cooper, SD Bouffler, S Ebdon-Jackson, JD Harrison, NP McColl, M Morrey, CR Muirhead, RA Paynter, JR Simmonds and JE Stewart (HPA)
Publication reference and date	Documents of the HPA: RCE-12 (2009)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1246519363993?p=1199451989432">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1246519363993?p=1199451989432</a>
Sponsoring organisation	HPA

Title	High dose radiation effects and tissue injury
Authors (and affiliations)	The independent advisory group on ionising radiation
Publication reference and date	Documents of the HPA: RCE-10 (2009)
Web link	<a href="http://www.hpa.org.uk/Publications/Radiation/DocumentsOfTheHPA/RCE10HighDoseRadiationEffectsandTissueInjuryRCE10/">http://www.hpa.org.uk/Publications/Radiation/DocumentsOfTheHPA/RCE10HighDoseRadiationEffectsandTissueInjuryRCE10/</a>
Sponsoring organisation	HPA

Title	Guidance on the application of dose coefficients for the embryo, fetus and breastfed infant in dose assessments for members of the public
Authors (and affiliations)	WB Oatway, JR Simmonds and JD Harrison (HPA)
Publication reference and date	Documents of the HPA: RCE-5 (2008)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1207121671073?p=1199451989432">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1207121671073?p=1199451989432</a>
Sponsoring organisation	HPA

Title	UK Recovery Handbook for Radiation Incidents: 2008
Authors (and affiliations)	A Nisbet, A Jones, J Brown, K Mortimer, G Roberts and S Mobbs (HPA)
Publication reference and date	HPA-RPD-042 (2008)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1215416656061?p=1197637096018">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1215416656061?p=1197637096018</a>
Sponsoring organisation	HPA, DEFRA, EA, EHS, FSA, SG, SEPA

Title	Guidance on the calculation, presentation and use of collective doses for routine discharges
Authors (and affiliations)	KR Smith, AP Bexon, K Sihra, JR Simmonds (HPA) J Lochard, T Schneider, C Bataille (CEPN)
Publication reference and date	European Commission Radiation Protection 144 (2007)
Web link	<a href="http://ec.europa.eu/energy/nuclear/radiation_protection/doc/publication/144.pdf">http://ec.europa.eu/energy/nuclear/radiation_protection/doc/publication/144.pdf</a>
Sponsoring organisation	EC

Title	Guidance on the Application of Dose Coefficients for the Embryo and Fetus from Intakes of Radionuclides by the Mother
Authors (and affiliations)	JR Cooper, MR Bailey, FA Fry, JD Harrison, CE McDonnell, JR Meara, AW Phipps, JR Simmonds, JW Stather and PJ Tattersall (HPA)
Publication reference and date	Documents of the NRPB: Volume 16 , No. 2 (2005)
Web link	<a href="http://www.hpa.org.uk/Publications/Radiation/NPRBArchive/DocumentsOfTheNRPB/Absd1602/">http://www.hpa.org.uk/Publications/Radiation/NPRBArchive/DocumentsOfTheNRPB/Absd1602/</a>
Sponsoring organisation	HPA

Title	Guidance on the realistic assessment of radiation doses to members of the public due to the operation of nuclear installations under normal conditions
Authors (and affiliations)	Article 31 group of experts
Publication reference and date	European Commission Radiation Protection 129 (2002)
Web link	<a href="http://ec.europa.eu/energy/nuclear/radiation_protection/doc/publication/129.pdf">http://ec.europa.eu/energy/nuclear/radiation_protection/doc/publication/129.pdf</a>
Sponsoring organisation	EC

Title	Authorisation of discharges of radioactive waste to the environment. Principles for the assessment of prospective public doses. Interim guidance.
Authors (and affiliations)	EA, SEPA, DoE (NI), NRPB, FSA
Publication reference and date	2002
Web link	<a href="http://www.food.gov.uk/multimedia/pdfs/PublicDoseGuidance.pdf">http://www.food.gov.uk/multimedia/pdfs/PublicDoseGuidance.pdf</a>
Sponsoring organisation	EA, SEPA, DoE (NI), NRPB, FSA

Title	Practical Use of the Concepts of Clearance and Exemption: Part 1, Guidance on General Clearance Levels for Practices Part II, Application of the Concepts of Exemption and Clearance to Natural Radiation Sources
Authors (and affiliations)	Article 31 Group of Experts
Publication reference and date	European Commission Radiation Protection 122 (2000)
Web link	<a href="http://ec.europa.eu/energy/nuclear/radiation_protection/doc/publication/122_part1.pdf">http://ec.europa.eu/energy/nuclear/radiation_protection/doc/publication/122_part1.pdf</a> (Part 1) <a href="http://ec.europa.eu/energy/nuclear/radiation_protection/doc/publication/122_part2.pdf">http://ec.europa.eu/energy/nuclear/radiation_protection/doc/publication/122_part2.pdf</a> (Part 2)
Sponsoring organisation	EC

Title	Public Exposure: Guidance on the 1990 Recommendations of ICRP
Authors (and affiliations)	ME Morrey, CA Robinson, JR Simmonds, SM Haywood and JR Cooper (HPA)
Publication reference and date	Documents of the NRPB: Volume 4 , No. 2 (1993)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1254510317942?p=1219908766891">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1254510317942?p=1219908766891</a>
Sponsoring organisation	HPA

## 2.2. Ongoing work

At present there are no references to place within this section.

### 2.3. Planned work

At present there are no references to place within this section.

## 3 Documents describing dose assessments methodologies

### 3.1. Completed work

Title	The methodology for assessing the radiological consequences of routine releases of radionuclides to the environment used in PC-CREAM 08
Authors (and affiliations)	J Smith, I Brown, M Harvey, W Oatway, J Sherwood, J Simmonds (HPA)
Publication reference and date	RPD-EA-9-2009 (2009) (User guide) HPA-RPD-058 (2009) (Methodology)
Web link	<a href="http://www.hpa.org.uk/Publications/Radiation/HPARPDSeriesReports/HPARPD058/">http://www.hpa.org.uk/Publications/Radiation/HPARPDSeriesReports/HPARPD058/</a>
Sponsoring organisation	HPA

Title	The PRISM Foodchain Modelling Software: Model Structures for PRISM 2.0
Authors (and affiliations)	FSA
Publication reference and date	PRISM 2.0 (2008)
Web link	<a href="http://www.foodbase.org.uk/results.php?f_report_id=266">http://www.foodbase.org.uk/results.php?f_report_id=266</a>
Sponsoring organisation	FSA

Title	Initial radiological assessment methodology: Part 1 (user report) and part 2 (methods and input data)
Authors (and affiliations)	RW Allot and JG Titley (EA) and B Lambers (Serco Assurance)
Publication reference and date	Science Report: SC030162/SR1 (2006)
Web link	<a href="http://publications.environment-agency.gov.uk/pdf/SCHO0106BKDT-e-e.pdf">http://publications.environment-agency.gov.uk/pdf/SCHO0106BKDT-e-e.pdf</a> <a href="http://publications.environment-agency.gov.uk/pdf/SCHO0106BKDV-e-e.pdf">http://publications.environment-agency.gov.uk/pdf/SCHO0106BKDV-e-e.pdf</a>
Sponsoring organisation	EA

Title	Generalised Derived Limits for Radioisotopes of Hydrogen, Carbon, Phosphorus, Sulphur, Chromium, Manganese, Cobalt, Zinc, Selenium, Technetium, Antimony, Thorium and Neptunium
Authors (and affiliations)	AL Jones, MP Harvey and JR Simmonds (HPA)
Publication reference and date	Documents of the NRPB: Volume 16 , No. 3 (2005)
Web link	<a href="http://www.hpa.org.uk/Publications/Radiation/NPRBArchive/DocumentsOfTheNRPB/Absd1603/">http://www.hpa.org.uk/Publications/Radiation/NPRBArchive/DocumentsOfTheNRPB/Absd1603/</a>
Sponsoring organisation	HPA

Title	Radiological assessments for small users
Authors (and affiliations)	CE McDonnell (HPA)
Publication reference and date	NRPB-W63 (2004)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1253114169126?p=1158945066506">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1253114169126?p=1158945066506</a>
Sponsoring organisation	HPA

Title	Methodology for Assessing Doses from Short-Term Planned Discharges to Atmosphere
Authors (and affiliations)	JG Smith, P Bedwell, C Walsh and SM Haywood (HPA)
Publication reference and date	NRPB-W54 (2004)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1251473344000?p=1158945066506">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1251473344000?p=1158945066506</a>
Sponsoring organisation	EA and HPA

Title	MARINA II – Update of the MARINA Project on the radiological exposure of the European Community from radioactivity in North European marine waters
Authors (and affiliations)	Various
Publication reference and date	European Commission Radiation Protection 132 (2003)
Web link	<a href="http://ec.europa.eu/energy/nuclear/radiation_protection/publications_en.htm">http://ec.europa.eu/energy/nuclear/radiation_protection/publications_en.htm</a> (report is zipped so no direct web link)
Sponsoring organisation	EC

Title	Modelling Approach for the Transfer of Actinides to Fruit Species of Importance in the UK
Authors (and affiliations)	P Teale and J Brown (HPA)
Publication reference and date	NRPB-W46 (2003)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1249369861727?p=1158945066506">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1249369861727?p=1158945066506</a>
Sponsoring organisation	FSA

Title	Development of a model for assessing the radiological impact of radionuclides in sewage sludge
Authors (and affiliations)	Mike Thorne and Associates Limited and NNC Limited
Publication reference and date	FSA contract report R01057 (2003)
Web link	<a href="http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityenvironment/r01programme/r01projectlist/r01057/">http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityenvironment/r01programme/r01projectlist/r01057/</a>
Sponsoring organisation	FSA

Title	Atmospheric Dispersion from Releases in the Vicinity of Buildings
Authors (and affiliations)	C Walsh and JA Jones (HPA)
Publication reference and date	NRPB-W16 (2002)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1248766809571?p=1158945066506">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1248766809571?p=1158945066506</a>
Sponsoring organisation	FSA

Title	Generalised Derived Constraints for Radioisotopes of Polonium, Lead, Radium and Uranium
Authors (and affiliations)	MP Harvey and JR Simmonds (HPA)
Publication reference and date	Documents of the NRPB: Volume 13 , No. 2 (2002)
Web link	<a href="http://www.hpa.org.uk/Publications/Radiation/NPRBArchive/DocumentsOfTheNRPB/Absd1302/">http://www.hpa.org.uk/Publications/Radiation/NPRBArchive/DocumentsOfTheNRPB/Absd1302/</a>
Sponsoring organisation	HPA

Title	Calculation of Resuspension Doses for Emergency Response
Authors (and affiliations)	C Walsh (HPA)
Publication reference and date	NRPB-W1 (2002)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1247816585623?p=1158945066506">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1247816585623?p=1158945066506</a>
Sponsoring organisation	HPA

Title	Generalised Derived Constraints for Radioisotopes of Strontium, Ruthenium, Iodine, Caesium, Plutonium, Americium and Curium  Generalised Derived Limits for Radioisotopes of Polonium, Lead, Radium and Uranium
Authors (and affiliations)	JG Titley, CA Attwood and JR Simmonds (HPA)  MP Harvey, JG Titley and JR Simmonds (HPA)
Publication reference and date	Documents of the NRPB: Volume 11 , No. 2 (2000)
Web link	<a href="http://www.hpa.org.uk/Publications/Radiation/NPRBArchive/DocumentsOfTheNRPB/Absd1102/">http://www.hpa.org.uk/Publications/Radiation/NPRBArchive/DocumentsOfTheNRPB/Absd1102/</a>
Sponsoring organisation	HPA

Title	Revised Generalised Derived Limits for Radioisotopes of Strontium, Ruthenium, Iodine, Caesium, Plutonium, Americium and Curium  Application of Generalised Derived Limits
Authors (and affiliations)	CA Attwood, JG Titley, JR Simmonds and CA Robinson (HPA)  CA Robinson and BT Wilkins (HPA)
Publication reference and date	Documents of the NRPB: Volume 9 , No. 1 (1998)
Web link	<a href="http://www.hpa.org.uk/Publications/Radiation/NPRBArchive/DocumentsOfTheNRPB/Absd0901/">http://www.hpa.org.uk/Publications/Radiation/NPRBArchive/DocumentsOfTheNRPB/Absd0901/</a>
Sponsoring organisation	HPA

Title	Models for Calculating the Transfer of Radionuclides through the Environment: Verification and Validation
Authors (and affiliations)	editor: JR Simmonds (HPA)
Publication reference and date	NRPB-R300 (1998)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1195733757154?p=1219992917052">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1195733757154?p=1219992917052</a>
Sponsoring organisation	HPA

Title	Assessment of Skin Doses
Authors (and affiliations)	MP Little, MW Charles, JW Hopewell, A Mayall, DC Lloyd, AA Edwards, C Sharp and JR Cooper
Publication reference and date	Documents of the NRPB: Volume 8 , No. 3 (1997)
Web link	<a href="http://www.hpa.org.uk/Publications/Radiation/NPRBArchive/DocumentsOfTheNRPB/Absd0803/">http://www.hpa.org.uk/Publications/Radiation/NPRBArchive/DocumentsOfTheNRPB/Absd0803/</a>
Sponsoring organisation	HPA

Title	Principles and Methods for Establishing Concentrations and Quantities (Exemption values) Below which Reporting is not Required in the European Directive
Authors (and affiliations)	M Harvey, S Mobbs, J cooper (HPA), AM Chapuis, A Sugier (IPSN) T Schneider, J Lochard (CEPN), A Janssens (EC)
Publication reference and date	European Commission Radiation Protection 65 (1993)
Web link	<a href="http://ec.europa.eu/energy/nuclear/radiation_protection/doc/publication/065.pdf">http://ec.europa.eu/energy/nuclear/radiation_protection/doc/publication/065.pdf</a>
Sponsoring organisation	EC

### 3.2. Ongoing work

Title	Generalised derived limits for radioisotopes of technetium, thorium and neptunium  Generalised derived constraints for radioisotopes of hydrogen, carbon, phosphorous, sulphur, chromium, manganese, cobalt, zinc, selenium, technetium, antimony, thorium and neptunium
Authors (and affiliations)	HPA
Publication reference and date	Planned for completion in 2010
Web link	Not available
Sponsoring organisation	HPA

### 3.3. Planned work

Title	Develop simple look-up tables/graphs using new generation air dispersion models
Authors (and affiliations)	Not available
Publication reference and date	Not available
Web link	Not available
Sponsoring organisation	Environment Agency

Title	Doses from small users
Authors (and affiliations)	SEPA
Publication reference and date	Not available
Web link	Not available
Sponsoring organisation	SEPA

## 4 Documents describing assessment studies

### 4.1. Completed work

Title	Hot particles in the environment around Dounreay (various reports)
Authors (and affiliations)	Various
Publication reference and date	Various
Web link	<a href="http://www.sepa.org.uk/radioactive_substances/publications/dounreay_reports.aspx">http://www.sepa.org.uk/radioactive_substances/publications/dounreay_reports.aspx</a>
Sponsoring organisation	SEPA

Title	Transfer of radioactivity from seaweed to terrestrial foods and potential radiation exposures to members of the public
Authors (and affiliations)	J Brown, D Hammond, D Wilding, B Wilkins and C Gow (HPA)
Publication reference and date	2009
Web link	<a href="http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityinfood/a04prolist/r04003/">http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityinfood/a04prolist/r04003/</a>
Sponsoring organisation	FSA Scotland, FSA, SEPA, HPA

Title	Implied doses to the population of the EU arising from reported discharges from EU nuclear power stations and reprocessing sites in the years 1997 to 2004
Authors (and affiliations)	M Harvey, W Oatway, J Smith and J Simmonds (HPA)
Publication reference and date	European Commission Radiation Protection 153 (2008)
Web link	<a href="http://ec.europa.eu/energy/nuclear/radiation_protection/doc/publication/153.pdf">http://ec.europa.eu/energy/nuclear/radiation_protection/doc/publication/153.pdf</a>
Sponsoring organisation	EC

Title	UK Assessment of Intake and Dose after Inhalation of Caesium-137 by Workers and Adult Members of the Public
Authors (and affiliations)	N Stradling, A Hodgson, T Fell, T Smith, G Etherington (HPA) T Rahola (STUK)
Publication reference and date	NRPB-W51 (2003)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAwebC/1251382944391?p=1158945066506">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAwebC/1251382944391?p=1158945066506</a>
Sponsoring organisation	EC (part)

Title	Distributions of Risk in Exposed Groups from Routine Releases of Radionuclides to the Environment
Authors (and affiliations)	KA Jones, AP Bexon, C Walsh, SM Haywood, AL Jones, CA Fayers, RGE Haylock and AW Phipps (HPA)
Publication reference and date	NRPB-W45 (2003)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAwebC/1249369861582?p=1158945066506">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAwebC/1249369861582?p=1158945066506</a>
Sponsoring organisation	This study was partly funded by the Environment Agency

Title	Radiological Impact on the UK Population of Industries which Use or Produce Materials Containing Enhanced Levels of Naturally Occurring Radionuclides
Authors (and affiliations)	GM Crockett, KR Smith, WB Oatway, MP Harvey, JSS Penfold and SF Mobbs (HPA)
Publication reference and date	NRPB-R327 (2001) – coal fired power stations NRPB-W48 (2003) – steel production industry
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAwebC/1249454476062?p=1158945066506">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAwebC/1249454476062?p=1158945066506</a> – Steel production industry  <a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAwebC/1195733822353?p=1219992917052">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAwebC/1195733822353?p=1219992917052</a> – Coal fired power stations
Sponsoring organisation	EA and HPA

Title	Distributions of Risk in Exposed Groups from Routine Releases of Radionuclides to the Environment
Authors (and affiliations)	KA Jones, AP Bexon, C Walsh, SM Haywood, AL Jones, CA Fayers, RGE Haylock and AW Phipps (HPA)
Publication reference and date	NRPB-W45 (2003)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1249369861582?p=1158945066506">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1249369861582?p=1158945066506</a>
Sponsoring organisation	EA and HPA

Title	Assessment of the radiological impact on the population of the European Union from European Union nuclear sites between 1987 and 1996
Authors (and affiliations)	JG Smith, A Bexon, FHC Boyer, M Harvey, AL Jones, T Kindler, J Mercer, SM Haywood (HPA), NB Verhoef, BRW Haverkate (NRG) A Artmann (GRS)
Publication reference and date	European Commission Radiation Protection 128 (2002)
Web link	<a href="http://ec.europa.eu/energy/nuclear/radiation_protection/doc/publication/128.pdf">http://ec.europa.eu/energy/nuclear/radiation_protection/doc/publication/128.pdf</a>
Sponsoring organisation	EC

Title	Radiological Impact of Routine Discharges from UK Civil Nuclear Sites in the Mid-1990s
Authors (and affiliations)	AP Bexon (HPA)
Publication reference and date	NRPB-R312 (2000)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1195733771771?p=1219992917052">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1195733771771?p=1219992917052</a>
Sponsoring organisation	HPA

## 4.2. Ongoing work

Title	Dose per unit release and dose per unit concentration data for accident scenarios
Authors (and affiliations)	Not available
Publication reference and date	Not available
Web link	Not available
Sponsoring organisation	Environment Agency

Title	Health implications of radioactive objects on beaches around Sellafield
Authors (and affiliations)	HPA
Publication reference and date	Not available
Web link	Not available
Sponsoring organisation	Environment Agency, Health Protection Agency

Title	Scoping realistic doses from incineration practices
Authors (and affiliations)	Not available
Publication reference and date	Not available
Web link	Not available
Sponsoring organisation	Environment Agency

### 4.3. Planned work

At present there are no references to place within this section.

## 5 Documents describing sources of data, research and development

The references described in this section include those that describe research into aspects of radiation protection and also those references that could be used as a source of information on parameters for dose assessment models described in other sections of this report.

### 5.1. Annual publications

Title	Radiological Habits Survey around nuclear licensed sites
Authors (and affiliations)	Cefas staff
Publication reference and date	Annual
Web link	<a href="http://www.cefas.co.uk/publications.aspx">http://www.cefas.co.uk/publications.aspx</a> (need to search for site name)
Sponsoring organisation	FSA, EA, NII

Title	Radioactivity in Food and the Environment
Authors (and affiliations)	Cefas staff
Publication reference and date	Annual
Web link	<a href="http://www.cefas.co.uk/publications/scientific-series/radioactivity-in-food-and-the-environment%28rife%29.aspx">http://www.cefas.co.uk/publications/scientific-series/radioactivity-in-food-and-the-environment%28rife%29.aspx</a>
Sponsoring organisation	EA, FSA, HSE, EHS(NI), SEPA

### 5.2. Completed work

Title	Quantification of radionuclide transfer in terrestrial and freshwater environments for radiological assessments
Authors (and affiliations)	various
Publication reference and date	IAEA-TECHDOC-1616 (2009)
Web link	<a href="http://www-pub.iaea.org/MTCD/publications/PDF/te_1616_web.pdf">http://www-pub.iaea.org/MTCD/publications/PDF/te_1616_web.pdf</a>
Sponsoring organisation	IAEA

Title	The human body retention time of environmental organically bound tritium
Authors (and affiliations)	GJ Hunt, TA Bailey and AR Reese (Cefas)
Publication reference and date	JRP 29 23-36 (2009)
Web link	Via JRP
Sponsoring organisation	DH

Title	Investigation of the effects of chemical speciation of Sulphur-35 released into the atmosphere on uptake by crops and animals
Authors (and affiliations)	Nicholson Environmental
Publication reference and date	2009
Web link	<a href="http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityinfood/a04prolist/r04006sul/">http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityinfood/a04prolist/r04006sul/</a>
Sponsoring organisation	FSA

Title	Assessment of Technetium-99 availability to marine foodstuffs from contaminated sediments
Authors (and affiliations)	CEFAS
Publication reference and date	2008
Web link	<a href="http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityenvironment/r01programme/r01projectlist/r01062/">http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityenvironment/r01programme/r01projectlist/r01062/</a>
Sponsoring organisation	FSA

Title	Reference material for radionuclides in sediment (IAEA-384) (Fangataufa Lagoon Sediment)
Authors (and affiliations)	P Povinec (IAEA), PA Smedley (Cefas) et al
Publication reference and date	J Radioanal and Nucl Chem 273(2) 383-393 (2007)
Web link	<a href="http://www-naweb.iaea.org/naml/files/384intercomparison.pdf">http://www-naweb.iaea.org/naml/files/384intercomparison.pdf</a>
Sponsoring organisation	Cefas

Title	Managing historic hot particle liabilities in the marine environment.
Authors (and affiliations)	G Webb, KS Leonard and J Penfold
Publication reference and date	JRP 27 no. 3A (special issue) (2007)
Web link	Via JRP
Sponsoring organisation	Various

Title	Changing patterns of radionuclide distribution in Irish Sea subtidal sediments
Authors (and affiliations)	DG Jones, PJ Kershaw (Cefas) et al
Publication reference and date	J Env Radioact 96(1-3) 63-74 (2007)
Web link	Via JER
Sponsoring organisation	EA

Title	The human alimentary tract transfer and body retention of environmental polonium-210
Authors (and affiliations)	GJ Hunt and HS Rumney (Cefas)
Publication reference and date	JRP 27 405-426 (2007)
Web link	<a href="http://www.cefas.co.uk/publications/posters/Poster23col-web.pdf">http://www.cefas.co.uk/publications/posters/Poster23col-web.pdf</a>
Sponsoring organisation	DH

Title	Organically-bound tritium (OBT) dispersion and accumulation in Severn Estuary sediments
Authors (and affiliations)	National Oceanography Centre, University of Southampton
Publication reference and date	Report R01034. FSA Information Centre (2007)
Web link	<a href="http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityenvironment/r01programme/r01projectlist/r01034/">http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityenvironment/r01programme/r01projectlist/r01034/</a>
Sponsoring organisation	FSA

Title	Article-35 of the Euratom Treaty: Overview of national radioactive discharge and environmental monitoring requirements in the EU
Authors (and affiliations)	GJ Hunt, KS Leonard (Cefas), et al
Publication reference and date	IAEA conf paper 2007 on environmental radioactivity
Web link	Not available
Sponsoring organisation	European Commission

Title	Distribution of Tc-99 in sub-tidal sediments of the Irish Sea
Authors (and affiliations)	D McCubbin, KS Leonard (Cefas) et al
Publication reference and date	Continental Shelf Res., 26 458-473 (2006)
Web link	Not available
Sponsoring organisation	FSA

Title	Characterization of NIST seaweed standard reference material
Authors (and affiliations)	I Outola, PA Smedley (Cefas) et al
Publication reference and date	Appl Rad Isot 64 (10-11) 1242-1247 (2006)
Web link	Via Appl Rad Isot
Sponsoring organisation	FSA

Title	Certified Reference Material for radionuclides in the fish flesh sample IAEA-414 (mixed fish from the Irish Sea and North Sea)
Authors (and affiliations)	MK Phan, PA Smedley (Cefas) et al
Publication reference and date	Appl Rad Isot 64 (10-11) 1253-1259 (2006)
Web link	Via Appl Rad Isot
Sponsoring organisation	FSA

Title	Field and model investigations of external gamma dose rates along the Cumbrian coast, NW England
Authors (and affiliations)	P McDonald (Westlakes), GJ Hunt (Cefas) et al
Publication reference and date	JRP 25 1 67-82 (2005)
Web link	Via JRP
Sponsoring organisation	Westlakes

Title	Accumulation and remobilisation of <sup>99</sup> Tc in eastern Irish Sea sediments
Authors (and affiliations)	CEFAS- Lowestoft laboratory.
Publication reference and date	2004
Web link	<a href="http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityenvironment/r01programme/r01projectlist/r01055/">http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityenvironment/r01programme/r01projectlist/r01055/</a>
Sponsoring organisation	FSA

Title	Pilot project to examine the feasibility, effectiveness and resource implications of presenting the results of a prospective dose assessment to the public
Authors (and affiliations)	HPA
Publication reference and date	2004
Web link	<a href="http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityenvironment/r01programme/r01projectlist/r01047/">http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityenvironment/r01programme/r01projectlist/r01047/</a>
Sponsoring organisation	FSA

Title	Accumulation of <sup>99</sup> Tc in the Irish Sea
Authors (and affiliations)	CEFAS-Lowestoft
Publication reference and date	2004
Web link	<a href="http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityenvironment/r01programme/r01projectlist/r01055/">http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityenvironment/r01programme/r01projectlist/r01055/</a>
Sponsoring organisation	FSA

Title	Compilation of data relevant to the impact of radioactive waste discharges to inland waters
Authors (and affiliations)	Enviros Quantisci Ltd.
Publication reference and date	2004
Web link	<a href="http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityenvironment/r01programme/r01projectlist/r01041/">http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityenvironment/r01programme/r01projectlist/r01041/</a>
Sponsoring organisation	FSA

Title	Generalised Habit Data for Radiological Assessments
Authors (and affiliations)	KR Smith and AL Jones (HPA)
Publication reference and date	NRPB-W41 (2003)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1249369853759?p=1158945066506">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1249369853759?p=1158945066506</a>
Sponsoring organisation	HPA

Title	Review of the Transfer of Naturally Occurring Radionuclides to Terrestrial Plants and Domestic Animals
Authors (and affiliations)	LW Ewers, GJ Ham and BT Wilkins (HPA)
Publication reference and date	NRPB-W49 (2003)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1249454481740?p=1158945066506">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1249454481740?p=1158945066506</a>
Sponsoring organisation	HPA

Title	Recommended Transfer Factors from Feed to Animal Products
Authors (and affiliations)	N Green and RFM Woodman (HPA)
Publication reference and date	NRPB-W40 (2003)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1249369853303?p=1158945066506">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1249369853303?p=1158945066506</a>
Sponsoring organisation	HPA

Title	Partitioning of Radionuclides with Sewage Sludge and Transfer along Terrestrial Foodchain Pathways from Sludge-amended Land - A Review of Data
Authors (and affiliations)	GJ Ham, S Shaw, GM Crockett and BT Wilkins (HPA)
Publication reference and date	NRPB-W32 (2003)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1249369852040?p=1158945066506">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1249369852040?p=1158945066506</a>
Sponsoring organisation	FSA

Title	Review of data suitable for foodchain modelling of <sup>14</sup> C, <sup>3</sup> H and <sup>35</sup> S in animals
Authors (and affiliations)	AEA Technology
Publication reference and date	2003
Web link	<a href="http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityenvironment/r01programme/r01projectlist/r01029/">http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radioactivityenvironment/r01programme/r01projectlist/r01029/</a>
Sponsoring organisation	FSA

Title	Habits surveys-terrestrial foods and sources II
Authors (and affiliations)	CEFAS-Lowestoft
Publication reference and date	2002
Web link	<a href="http://www.food.gov.uk/multimedia/pdfs/researchannrep2002.pdf">http://www.food.gov.uk/multimedia/pdfs/researchannrep2002.pdf</a>
Sponsoring organisation	FSA

Title	Naturally-occurring radionuclides in foods collected from the wild
Authors (and affiliations)	N Green, DJ Hammond, MF Davidson, BT Wilkins and B Williams (HPA)
Publication reference and date	NRPB-W30 (2002)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAwebC/1248940840161?p=1158945066506">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAwebC/1248940840161?p=1158945066506</a>
Sponsoring organisation	FSA

Title	The Availability of Soil-Associated Radionuclides for Uptake After Inadvertent Ingestion by Humans
Authors (and affiliations)	S Shaw and N Green (HPA)
Publication reference and date	NRPB-W17 (2002)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAwebC/1248766810125?p=1158945066506">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAwebC/1248766810125?p=1158945066506</a>
Sponsoring organisation	HPA

Title	Environmental Distributions and the Practical Utilisation of Detection Limited Environment Measurement Data
Authors (and affiliations)	WM Daniels and NA Higgins (HPA)
Publication reference and date	NRPB-W13 (2002)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAwebC/1247816629173?p=1158945066506">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAwebC/1247816629173?p=1158945066506</a>
Sponsoring organisation	FSA and HPA

Title	Seasonal variations in radionuclide concentrations in crabs and lobsters
Authors (and affiliations)	University of Liverpool
Publication reference and date	2002
Web link	<a href="http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radiologicalsurveillance/r02prog/r02projectlist/r02011/">http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radiologicalsurveillance/r02prog/r02projectlist/r02011/</a>
Sponsoring organisation	FSA

Title	Radioactivity in uncommon seafoods
Authors (and affiliations)	CEFAS-Lowestoft laboratory
Publication reference and date	2002
Web link	<a href="http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radiologicalsurveillance/r02prog/r02projectlist/r02013/">http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radiologicalsurveillance/r02prog/r02projectlist/r02013/</a>
Sponsoring organisation	FSA

Title	The radiological significance of farmed fish
Authors (and affiliations)	CEFAS-Lowestoft laboratory
Publication reference and date	2002
Web link	<a href="http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radiologicalsurveillance/r02prog/r02projectlist/r02015/">http://www.food.gov.uk/science/research/researchinfo/radiologicalresearch/radiologicalsurveillance/r02prog/r02projectlist/r02015/</a>
Sponsoring organisation	FSA

Title	Investigation of the sources and fate of radioactive discharges to public sewers
Authors (and affiliations)	JG Titley, AD Carey, GM Crockett, GJ Ham, MP Harvey, SF Mobbs, C Tournette, JSS Penfold and BT Wilkins (NRPB and EA)
Publication reference and date	Environment Agency Technical Report P288 (2000)
Web link	None available
Sponsoring organisation	EA

Title	Gut transfer factors: Values proposed by a Nuclear Energy Agency Expert Group for radionuclides ingested by members of the public  Gut transfer factors: values for plutonium and americium in shellfish and best estimates for actinides in food
Authors (and affiliations)	JD Harrison, GM Kendall and JW Stather (HPA)
Publication reference and date	Documents of the NRPB: Volume 1 , No. 2 (1990)
Web link	<a href="http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1253205561788?p=1219908766891">http://www.hpa.org.uk/webw/HPAweb&amp;HPAwebStandard/HPAweb_C/1253205561788?p=1219908766891</a>
Sponsoring organisation	HPA

Title	Organically bound tritium volunteer study
Authors (and affiliations)	John Hunt, Trevor Bailey, Allan Reese (CEFAS)
Publication reference and date	J. Radiol. Prot. 29 23-36 , March 2009
Web link	<a href="http://www.iop.org/EJ/abstract/0952-4746/29/1/001/">http://www.iop.org/EJ/abstract/0952-4746/29/1/001/</a>
Sponsoring organisation	Environment Agency, CEFAS

### 5.3. Ongoing work

Title	Uncertainties associated with dose and risk estimates for internal emitters
Authors (and affiliations)	HPA
Publication reference and date	Not available
Web link	Not available
Sponsoring organisation	Environment Agency, Health Protection Agency

Title	Skin doses from Radium particles
Authors (and affiliations)	C Dale (SEPA)
Publication reference and date	Not available
Web link	Not available
Sponsoring organisation	SEPA

Title	Identifying key parameters which control coastal dispersion modelling
Authors (and affiliations)	Not available
Publication reference and date	Planned for completion in 2010
Web link	Not available
Sponsoring organisation	Environment Agency

Title	Modelling the bioaccumulation of P-32 and P-33 in freshwater systems
Authors (and affiliations)	Jim T Smith (University of Portsmouth)
Publication reference and date	Planned for completion in 2009
Web link	Not available
Sponsoring organisation	Environment Agency

Title	Measurement and assessment of external dose rates to people on houseboats and using riverbanks
Authors (and affiliations)	Adrian Punt (Enviros)
Publication reference and date	Planned for completion in 2009
Web link	Not available
Sponsoring organisation	Environment Agency

Title	Review of the transfer of technetium to terrestrial crops and animal products
Authors (and affiliations)	L Ewers and J Brown (HPA)
Publication reference and date	Not available
Web link	Not available
This work is:	Underway
Sponsoring organisation	HPA

#### **5.4. Planned work**

Title	Variation in radionuclide concentrations in beach sediments
Authors (and affiliations)	SEPA
Publication reference and date	Not available
Web link	Not available
Sponsoring organisation	SEPA