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Radiological Habits Survey: Aldermaston and Burghfield, 2011

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Radiological Habits Survey: Aldermaston and Burghfield, 2011

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SUMMARY

This report presents the results of a survey conducted in 2011 to determine the habits and consumption patterns of people living, working and pursuing recreational activities in the vicinity of the Aldermaston and Burghfield nuclear sites. Aldermaston and Burghfield are separate nuclear sites although for the purpose of this survey they are considered together. Aldermaston provides advanced research, design and manufacturing facilities for the components of the UK's nuclear deterrent on behalf of the MoD. The Aldermaston site discharges liquid and gaseous radioactive wastes to the environment and contains sources of direct radiation. Burghfield is responsible for the final assembly and maintenance of nuclear warheads as well as their decommissioning. The Burghfield site discharges low level gaseous radioactive waste to the environment. Areas likely to be most affected by the discharges and sources of radiation were defined as the aquatic survey area for liquid discharges, the terrestrial survey area for the deposition from gaseous discharges, and the direct radiation survey area for ionising radiation emanating directly from the site. The occupancy data collected from the direct radiation survey area is also applicable to the direct exposure arising from gaseous releases.

The following potential exposure pathways were investigated:

- The consumption of food from the aquatic survey area
- Activities and occupancy over bankside substrates
- The handling of fishing gear and sediment
- Activities and occupancy in and on water
- Occupancy in close proximity to sewage sludge
- The consumption of food from the terrestrial survey area
- The use and destination of produce originating from the survey areas
- The consumption and use of groundwater and surface water in the terrestrial survey area
- The transfer of contamination off-site by wildlife
- Activities and occupancy within the direct radiation survey area
- Any new or unusual exposure pathways

Interviews were conducted with members of the public and data collected for 498 individuals are presented and discussed. High rates of consumption, bankside occupancy and handling are identified using established methods comprising (a) a 'cut off' to define the high-rate group and (b) 97.5th percentiles. The rates so identified can be used in dose assessments. Additionally, profiles of integrated habits data are presented specifically for use in total dose assessments.

Aquatic survey area

The aquatic survey area was in two parts; waterways to the north of the Aldermaston site, which receive liquid discharges via a small stream containing surface water runoff from a historically contaminated area of the site; and Silchester Brook to the south of the site, which receives treated effluent from the Silchester Sewage Treatment Works. The Silchester Brook was included because the Silchester Sewage Treatment Works receives discharges from the Aldermaston site via a sewer.

No interviewees were consuming foods from the aquatic survey area, although it was reported that fish from the River Kennet and the Kennet and Avon Canal were consumed and it is suggested that a consumption rate of coarse fish of 1 kg y^{-1} be considered for assessment purposes (See Annex 3).

The only activity undertaken by adults in the high-rate group for bankside occupancy was angling from the riverbank. Gamma dose rate measurements were taken at many locations in the aquatic survey area where angling occurred. The only activity undertaken by the adults in the high-rate group for handling fishing gear was handling crayfish traps. No sediment handling was identified during the survey. The only water-based activity noted during the survey was for individuals living on a houseboat. The irrigation of fruit and vegetables grown on land in the aquatic survey area using water from the Aldermaston Stream was identified. Occupancy in close proximity to sewage sludge was identified.

Terrestrial survey area

The terrestrial survey areas were defined as the land, watercourses and lakes within 5 km of the centres of the Aldermaston and Burghfield sites. Freshwater fish and freshwater crustaceans caught from waterways in the terrestrial survey area, which were potentially subject to gaseous discharges, but not liquid discharges, were included with terrestrial foods.

Twenty-six farms were identified that produced milk (from dairy cattle), beef cattle, lambs, pigs, turkeys, chicken eggs and arable crops. The farmers and their families consumed foods that were produced on their land. Six allotment sites with approximately 275 plots in total were identified. The allotment holders grew a wide variety of fruit and vegetables, which were consumed by their families and friends. A residential property was identified that kept ducks, geese and many varieties of chickens. Six beekeepers were identified in the survey area, three of which were interviewed.

Foods from the terrestrial survey area were consumed from the following food groups: green vegetables; other vegetables; root vegetables; potato; domestic fruit; milk; cattle meat; pig meat; sheep meat; poultry; eggs; wild/free foods; rabbits/hares; honey; wild fungi; venison; freshwater fish; freshwater crustaceans. Four mean consumption rates for the adult high-rate groups were found to

be greater than the generic 97.5th percentile consumption rates. These were for root vegetables, milk, pig meat and eggs. The consumption of cereals or freshwater plants was not identified.

The consumption of borehole water by humans and livestock was identified. Livestock were also consuming spring water and had access to streams and ditch water. Control measures taken by the Aldermaston and Burghfield operator against wildlife in order to limit the possibility that contamination is transferred off-site included periodic culling of rabbits and discouraging pigeons from roosting.

Direct radiation survey area

The direct radiation survey area at Aldermaston was defined as the land within 1 km of the Aldermaston nuclear licensed site boundary. The direct radiation survey area at Burghfield was defined as the land within 1 km of the boundary of the eastern half of the Burghfield nuclear licensed site, since no licensed activities take place on the western half of the licensed site. The Burghfield site did not contain sources of direct radiation; however, the occupancy data collected from the direct radiation survey area is applicable to inhalation and external exposure pathways arising from gaseous releases from the site.

Occupancy rates were obtained for residents, employees, visitors, farmers, farm workers, school staff, school pupils, dog walkers and anglers. The occupancy rates were analysed in zones according to the distance from the Aldermaston or Burghfield defined site boundary.

In the Aldermaston direct radiation survey area the highest indoor, outdoor and total occupancy rates in the 0 – 0.25 km zone were for residents, one of whom also ran a business from home. In the >0.25 – 0.5 km zone the highest indoor and total occupancy rates were for employees and the highest outdoor occupancy rate was for a farm worker. (This zone was a densely populated urban area but no quantitative data for residents were obtained as the residents who were approached declined to participate in this survey. Occupancy rates for residents living within this zone that were obtained in the 2002 habits survey are presented in Annex 3 for use in dose assessments.) In the >0.5 – 1.0 km zone the highest indoor and total occupancy rates were for residents; the highest outdoor occupancy rate was for a farmer who also lived in the area.

In the Burghfield direct radiation survey area there were no occupied residential properties in the 0 – 0.25 km or >0.25 – 0.5 km zones. In the >0.5 – 1.0 km zone the highest indoor and total occupancy rates were for residents and the highest outdoor occupancy rate was for a farmer who lived in the area.

Gamma dose rate measurements were taken indoors and outdoors at most properties where interviews were conducted in the direct radiation survey areas. Background readings were taken at distances beyond 5 km of the Aldermaston and Burghfield site centres.

Comparisons with the previous survey

Comparisons were made with the results from a previous habits survey undertaken around the Aldermaston and Burghfield sites in 2002. Reasons for significant changes in the consumption, occupancy and handling rates were identified for certain pathways and these are provided in Section 8.

In the aquatic survey area, the only food that was consumed in 2002 was freshwater crustaceans. No interviewees were consuming foods from the aquatic survey area in 2011, although it was reported that freshwater fish were being consumed.

The mean bankside occupancy rate over grass for the adult high-rate group increased in 2011 compared to 2002, from 320 h y⁻¹ to 660 h y⁻¹. Additionally, in 2011 a single observation of 6 h y⁻¹ was recorded over mud, sand and stones, whereas in 2002 no activities were recorded over this substrate. The mean rate for the adult high-rate group for handling fishing gear decreased from 320 h y⁻¹ in 2002 to 80 h y⁻¹ in 2011. No sediment handling activities were identified in either 2002 or 2011. Occupancy rates for adults in close proximity to sewage sludge were recorded in 2011 but not in 2002. The occupancy rate in close proximity (<10m) to the sewage sludge for seven employees was 960 h y⁻¹. No activities were recorded occurring in or on water in 2002. Occupancy on a houseboat which was permanently afloat was recorded in 2011 as 5200 h y⁻¹. There were no activities recorded occurring in water in 2011.

In the terrestrial survey area in 2011, compared with 2002, there were relatively large increases in the mean consumption rates for the adult high-rate groups for the following food groups: milk, from 230 l y⁻¹ to 590 l y⁻¹; pig meat, from 21 kg y⁻¹ to 44 kg y⁻¹; eggs, from 21 kg y⁻¹ to 120 kg y⁻¹; venison, from 3.4 kg y⁻¹ to 24 kg y⁻¹; freshwater fish, from 1.2 kg y⁻¹ to 24 kg y⁻¹. Additionally, in 2011, the mean consumption rate for the high-rate group for freshwater crustaceans was identified as 1.7 kg y⁻¹ whereas no consumption of crustaceans from the terrestrial survey area was identified in 2002. There were relatively large decreases in the mean consumption rates for the adult high-rate groups for the following food groups: potato, from 72 kg y⁻¹ to 56 kg y⁻¹; domestic fruit, from 39 kg y⁻¹ to 26 kg y⁻¹; cattle meat, from 42 kg y⁻¹ to 20 kg y⁻¹; poultry, from 26 kg y⁻¹ to 4.8 kg y⁻¹; honey, from 10 kg y⁻¹ to 4.0 kg y⁻¹; wild fungi, from 3.0 kg y⁻¹ to 0.7 kg y⁻¹. There were small increases in the mean consumption rates for the adult high-rate groups for root vegetables, wild/free foods and rabbits/hares. There were small decreases for green vegetables, other vegetables and sheep meat. The consumption of cereals or freshwater plants was not identified in either survey.

In the Aldermaston direct radiation survey area in 2011 compared with 2002, there was a slight decrease in the highest total occupancy rate in the 0 - 0.25 km zone, from 8700 h y⁻¹ to 8100 h y⁻¹. In the >0.25 - 0.5 km zone in 2011 compared with 2002 there was a large decrease in the highest total

occupancy rate, from 8700 h y⁻¹ to 3200 h y⁻¹. (Note that the 2011 rate is an underestimate since residents, who typically spend more time in direct radiation survey areas than people undertaking other activities, declined to participate in the survey.) There was a decrease in the highest total occupancy rate in the >0.5 – 1.0 km zone in 2011 compared with 2002, from 8700 h y⁻¹ to 8100 h y⁻¹. In the Burghfield direct radiation survey area in 2011 and 2002, there were no occupied residential properties identified in the 0 – 0.25 km zone. In the >0.25 – 0.5 km zone in 2011 there were no occupied residential properties identified but in 2002 the highest total occupancy rate was 7800 h y⁻¹. The highest total occupancy rate in the >0.5 – 1.0 km zone in 2002 and 2011 was 8500 h y⁻¹ (rounded data for 2002). Two sets of gamma dose rate measurements taken at the same residences in 2011 and 2002 were compared and were broadly similar.

Recommendations

Recommendations for changes to the current environmental monitoring programmes are provided. These are based on the information collected during the survey and also take into account the potential radiological significance of the various pathways that were identified. The recommendations include, replacing the sample of broad beans currently monitored with a sample of runner beans, adding a sample of pork or venison and adding a sample of chicken eggs.

1 INTRODUCTION

The public may be exposed to radiation as a result of the operations of the Aldermaston and Burghfield nuclear licensed sites either through the permitted discharges of liquid or gaseous radioactive wastes into the local environment, or from radiation emanating directly from the sites. This report provides information on activities carried out locally by members of the public, which may influence their radiation exposure. The study has been funded by the Environment Agency, the Food Standards Agency and the Office for Nuclear Regulation in order to support their respective roles in protecting the public from the effects of radiation.

UK policy on the control of radiation exposure has long been based on the recommendations of the International Commission on Radiological Protection (ICRP), which embody the principles of justification of practices, optimisation of protection and dose limitation. Radiological protection of the public is based on the concept of a 'representative person'. This notional individual is defined as being representative of the more highly exposed members of the population. It follows that, if the dose to the representative person is acceptable when compared to relevant dose limits and optimization, other members of the public will receive acceptable doses, and overall protection to the public is provided from the effects of radiation. The term 'representative person' is equivalent to, and replaces, the term 'average member of the critical group' as recommended by ICRP (ICRP, 2006). The recommendations of the ICRP were updated in 2007 (ICRP, 2007) and, for the public, still include the principle of protecting the individuals most highly exposed to radiation, characterised by the representative person.

1.1 Regulatory framework

The Environment Agency regulates the discharges of waste under the Environmental Permitting Regulations (UK Parliament, 2010); prior to 6th April 2010 regulation was under the Radioactive Substances Act 1993 (RSA 93) (UK Parliament, 1993) as amended by the Environment Act 1995 (EA 95) (UK Parliament, 1995). The regulations take account of the European Union (EU) Basic Safety Standards (BSS) Directive 96/29/Euratom (CEC, 1996) which embody the recommendations of the ICRP, particularly ICRP 60 (ICRP, 1991). Installation and operation of certain prescribed activities can only occur on sites if they are licensed under the Nuclear Installations Act 1965 (as amended) (NIA 65) (UK Parliament, 1965). From 1st April 2011 the Office for Nuclear Regulation (ONR), an agency of the Health and Safety Executive, implements this legislation and is also responsible for regulating, under the Ionising Radiations Regulations (IRR 99) (UK Parliament, 1999), the exposure of the public to direct radiation from the operations occurring on these sites. Prior to 1st April 2011 these functions were carried out by the Nuclear Installations Inspectorate of the Health and Safety Executive.

Appropriate discharge limits are set by the Environment Agency after wide-ranging consultations that include the Food Standards Agency. The Food Standards Agency has responsibilities for ensuring that any radioactivity present in food does not compromise food safety and that permitted discharges of radioactivity do not result in unacceptable doses to consumers via the food chain. The Food Standards Agency also ensures that public radiation exposure via the food chain is within EU acceptable limits.

1.2 Radiological protection framework

Dose standards for the public are embodied in the national policy (UK Parliament, 2009a), in guidance from the International Atomic Energy Agency (IAEA), in the Basic Safety Standards for Radiation Protection (IAEA, 1996) and in European Community legislation in the EU BSS Directive 96/29/Euratom (CEC, 1996). The public dose standards were incorporated into UK law in IRR 99. In order to implement the BSS Directive in England and Wales, the Environment Agency was issued with a direction by the Department of the Environment, Transport and the Regions in 2000 (DETR, 2000). The requirement to observe the conditions laid down in the Basic Safety Standards (BSS) in England and Wales is now incorporated in the Environmental Permitting Regulations 2010 (UK Parliament, 2010). These require that the environment agencies ensure, wherever applicable, that:

- All public radiation exposures from radioactive waste disposals are kept As Low As Reasonably Achievable (ALARA), social and economic factors being taken into account;
- The sum of all exposures does not exceed the dose limit of 1 mSv a year;
- The dose received from any new source does not exceed 0.3 mSv a year;
- The dose received from any single site does not exceed 0.5 mSv a year.

The dose limit of 1 mSv per year to the public from all anthropogenic sources other than medical applications is also the recommendation made by the ICRP (ICRP, 2007).

The environment agencies are also required to ensure that the dose estimates are as realistic as possible for the population as a whole and for reference groups of the population. They are required to take all necessary steps to identify the reference groups of the population taking into account the effective pathways of transmission of radioactive substances. Guidance on the principles underlying prospective radiological assessment (i.e. assessments of potential future doses) has been provided by the National Dose Assessment Working Group (NDAWG), which consists of representatives of UK Government Bodies and other organisations with responsibilities for dose assessments (EA, SEPA, DoENI, NRPB and FSA, 2002). NDAWG has also published principles underlying retrospective radiological assessment (i.e. assessment of doses already received from past discharges) (Allott, 2005) and possible methods of carrying out these assessments using the data from combined habits surveys (Camplin *et al.*, 2005). NDAWG agreed that the optimal method for performing retrospective dose assessments would be to use habits profiles (profiling method). This approach is being adopted in Radioactivity in Food and the Environment (RIFE) publications, (e.g. EA, NIEA, FSA and SEPA,

2011), as combined habits surveys are completed. NDAWG has also published reports on the collection and use of habits survey data in retrospective and prospective dose assessments (NDAWG, 2005; NDAWG 2009); the principles described in these reports are consistent with those used here.

2 THE SURVEY

2.1 Site activity

The Aldermaston and Burghfield nuclear sites are located in west Berkshire; the Aldermaston site is located approximately 2 km north of Tadley and the Burghfield site is located approximately 3 km north-east of Burghfield Common. Nuclear materials are processed at the sites on behalf of the Ministry of Defence. Atomic Weapons Establishment Management Limited is the contractor engaged by the government to manage, maintain and operate these government owned sites until March 2025. Atomic Weapons Establishment plc (AWE plc) is the company responsible for contract delivery; this includes maintaining the operating licences and discharge permits, management, operations and employing the workforce. AWE plc is licensed to operate the sites under NIA 65 and each site has a separate licence. The company headquarters are based at the Aldermaston site, providing research, design and manufacturing facilities. The Burghfield site maintains and assembles nuclear warheads and is also responsible for their decommissioning. For the purpose of this survey the two nuclear sites are considered together.

Under the Environmental Permitting Regulations, AWE plc is permitted to discharge liquid and gaseous radioactive waste from the Aldermaston site and gaseous radioactive waste from the Burghfield site. The Aldermaston site discharges liquid radioactive waste to a stream to the north of the site and to a local sewer that leads to the Silchester Sewage Treatment Works. Previously, the discharges to the stream were made under permit but this has now changed to an activity notification level. Gaseous radioactive wastes from both sites are discharged via stacks. The Aldermaston site contains sources of direct radiation. Details of the amounts of gaseous and liquid radioactive waste discharged are published in the RIFE reports, for example, EA, FSA, NIEA and SEPA, 2011. At the time of the habits survey, the Aldermaston site was operating normally. At the Burghfield site, building works were being undertaken; other than this, site operations were considered as normal.

2.2 Survey objectives

The Centre for Environment, Fisheries & Aquaculture Science (Cefas) undertook the Aldermaston and Burghfield habits survey in 2011 on behalf of the Environment Agency, the Food Standards Agency, and the Office for Nuclear Regulation. The aim of the survey was to obtain comprehensive information on the habits of the public that might lead to their exposure to radiation via gaseous discharges, liquid discharges and direct radiation from the Aldermaston and Burghfield nuclear sites.

Specifically, investigations were conducted into the following:

- The consumption of food from the aquatic survey area
- Activities and occupancy over bankside substrates
- The handling of fishing gear and sediment
- Activities and occupancy in and on water
- Occupancy in close proximity to sewage sludge
- The consumption of food from the terrestrial survey area
- The use and destination of produce originating from the survey areas
- The consumption and use of groundwater and surface water in the terrestrial survey area
- The transfer of contamination off-site by wildlife
- Activities and occupancy within the direct radiation survey area
- New or unusual exposure pathways

No additional site-specific investigations were requested by the Environment Agency, the Food Standards Agency or the Office for Nuclear Regulation.

2.3 Survey areas

The geographic extents of potential effects from liquid discharges, from deposition from gaseous releases, and from direct radiation, are different. Therefore, different survey areas were defined to cover each of these three main possible sources of exposure. These were an aquatic area relating to liquid discharges, a terrestrial area relating to deposition from gaseous discharges, and a direct radiation area relating to ionising radiation emanating directly from the sites.

The aquatic survey area, shown in Figure 1, was in two parts; waterways to the north of the Aldermaston site, which receive liquid discharges via a small stream containing surface water runoff from a historically contaminated area of the site; and Silchester Brook to the south of the site, which receives treated effluent from the Silchester Sewage Treatment Works. The Silchester Brook was included because the Silchester Sewage Treatment Works receives discharges from the Aldermaston site via a sewer. The waterways to the north of the site included the stream that leaves the Aldermaston site, the Aldermaston Park Lake into which the stream flows, the Aldermaston Stream, which takes water from the lake to the River Kennet, the River Kennet from where the stream enters it to its confluence with the Kennet and Avon Canal, and approximately 1 km of the canal from the confluence downstream to Tyle Mill Lock. For Burghfield no aquatic survey was necessary as the site does not hold a permit to discharge liquid waste.

The terrestrial survey areas, shown in Figure 2, covered all land within 5 km from the centre of each site, (National Grid Reference: Aldermaston, SU 600 637 and Burghfield, SU 683 680), to encompass the main areas of potential deposition from gaseous discharges. Since the sites centres were

approximately 9 km apart, the two areas overlap. Watercourses and lakes that potentially contained contamination from the washout of gaseous discharges are included in the terrestrial section of this report.

For the Aldermaston site, the direct radiation survey area, shown in Figure 3, was defined as all land and waterways within 1 km of the nuclear licensed site boundary. The occupancy data collected from the direct radiation survey area is also applicable to inhalation and external exposure pathways arising from gaseous releases from the site.

For the Burghfield site, the direct radiation survey area, shown in Figure 4, was defined as all land and waterways within 1 km of the boundary of the eastern half of the nuclear licensed site. The survey area was not based on the boundary of the entire licensed site since no licensed activities take place on the western half of it. The Burghfield site did not contain sources of direct radiation; however, the occupancy data collected from the direct radiation survey area is applicable to inhalation and external exposure pathways arising from gaseous releases from the site. The Burghfield nuclear licensed site occupies only a part of the AWE facilities at Burghfield. Non licensed areas extend to the north, west and south of the site.

There were two alterations to the survey areas used in the previous habits survey conducted by Cefas around the Aldermaston and Burghfield sites, which was in 2002 (Tipple *et al.*, 2003):

1. In the 2002 habits survey report the aquatic survey area included the River Thames downstream of the Pangbourne discharge pipe to the Mapledurham weir; this section of the River Thames was not included in the 2011 aquatic survey area as the Pangbourne outfall closed in 2005 and is no longer receiving liquid discharges from the Aldermaston site.
2. The position taken as the centre of the Aldermaston site in 2011 was approximately 250 m south of the position used in 2002, owing to improved information received. This had little effect on the activities observed in the terrestrial survey area.



Figure 1. The Aldermaston aquatic survey area

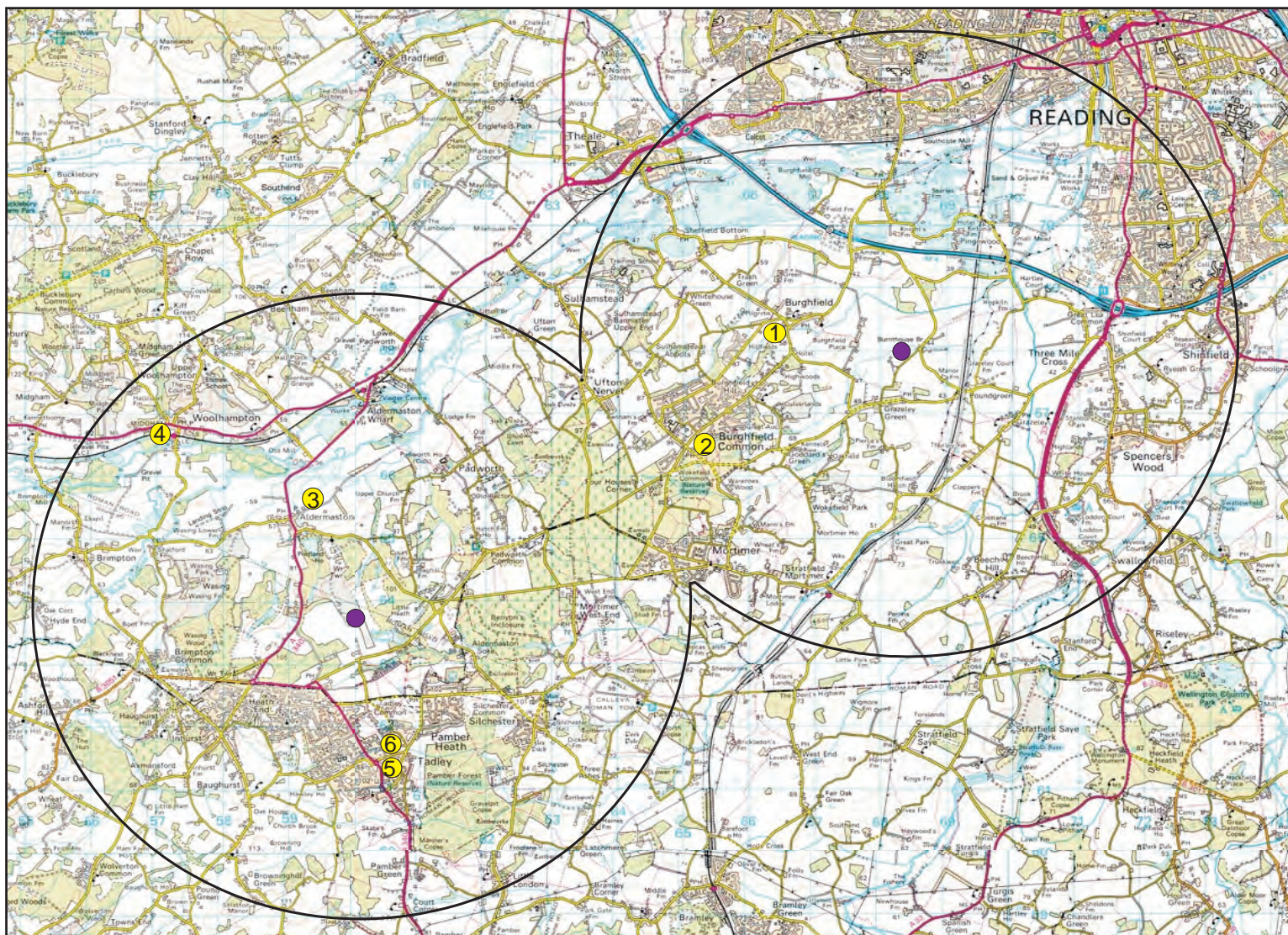


Figure 2. The Aldermaston and Burghfield terrestrial survey areas

Key ● Site centres

- ① Burghfield Hatch allotments
- ② Burghfield Common allotments
- ③ Aldermaston Village allotments
- ④ Woolhampton allotments
- ⑤ Rowan Road allotments
- ⑥ Giles Road allotments

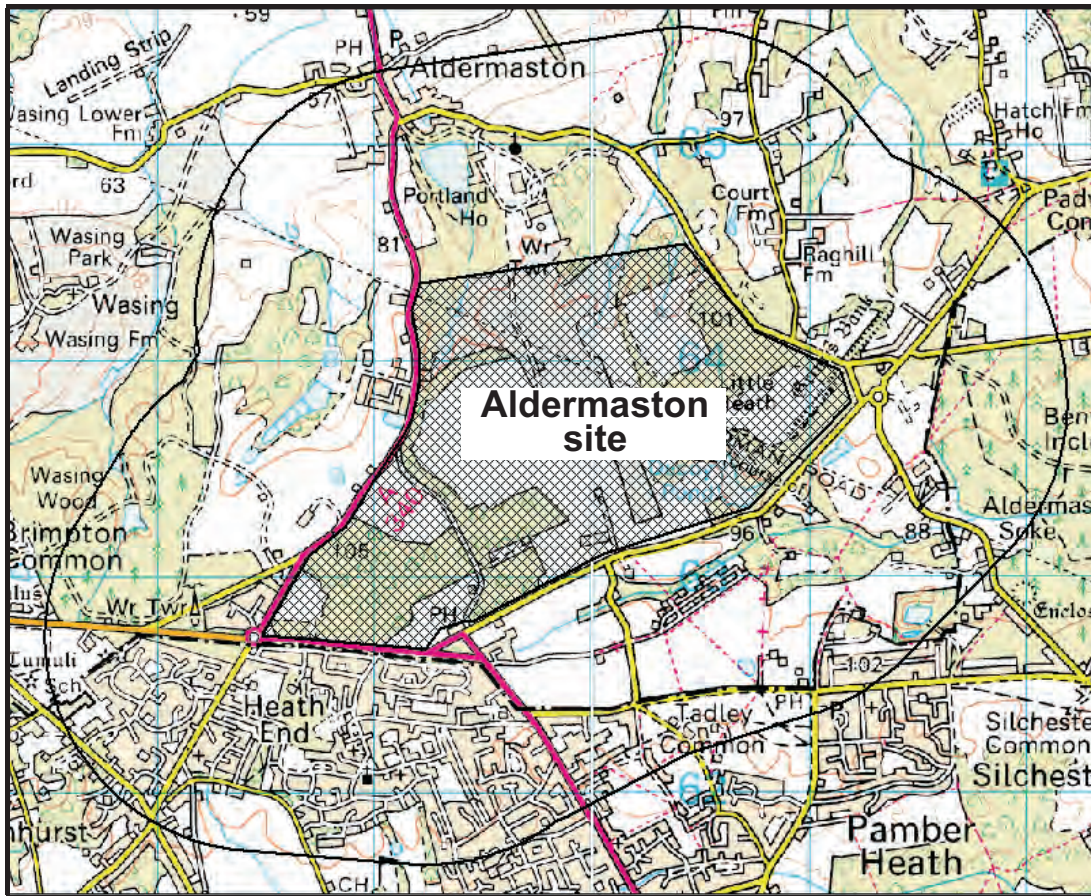


Figure 3. The Aldermaston direct radiation survey area.

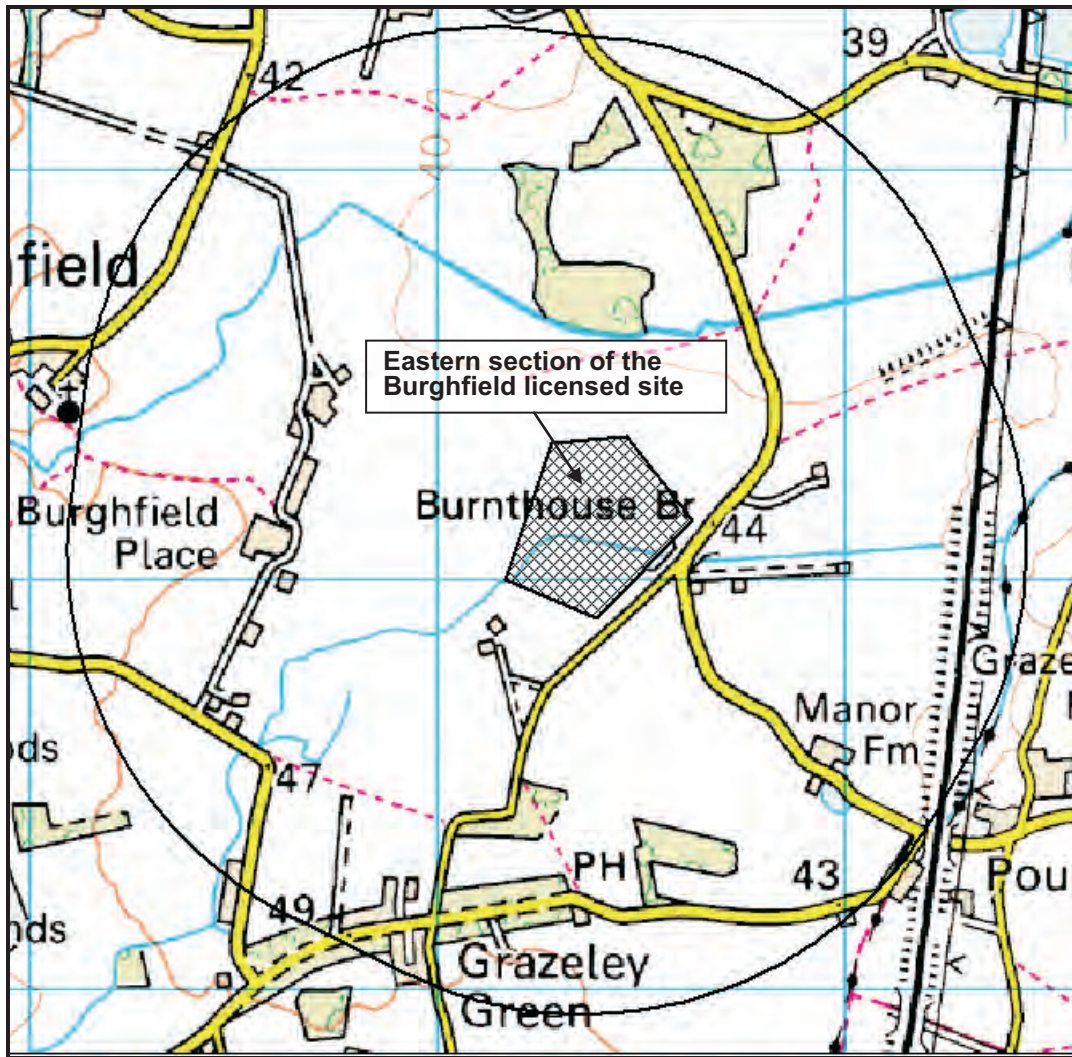


Figure 4. The Burghfield direct radiation survey area.

2.4 Conduct of the survey

As part of the pre-survey preparation, the Environment Agency, the Food Standards Agency and the Office for Nuclear Regulation were contacted to confirm basic requirements and to identify any additional site-specific ones. Information relating to the activities of people in the aquatic and terrestrial survey areas was obtained from Internet searches, Ordnance Survey maps and from previous habits surveys undertaken around Aldermaston and Burghfield. People with local knowledge of the survey area were contacted for information relevant to the various exposure pathways. These included representatives from parish councils who provided information on allotments, an allotment manager who provided information on privately owned allotments and a commercial crayfish trapper.

A proposed programme for fieldwork was distributed to the Environment Agency, the Food Standards Agency, and the Office for Nuclear Regulation before the fieldwork commenced, for their comment.

The fieldwork was carried out from the 13th – 23rd September 2011 by a survey team of four people, according to techniques described by Leonard *et al.* (1982). During the fieldwork a meeting was held between the members of the survey team and representatives from the Aldermaston site. This discussion provided details about current site activities, local information, potential exposure pathways and activities in the area, and the potential for transfer of contamination off-site by wildlife.

The following information was obtained during the meeting:

- The Aldermaston and Burghfield sites were operating routinely during the habits survey.
- The Burghfield site is currently undergoing building work. Information recorded in the 2002 habits survey stated the Burghfield site would be closing within 5 – 10 years; this is no longer the case.
- The Pangbourne outfall pipe was closed in 2005 and the discharge pipes at the outfall have been removed; the pipes underground are subject to de-commissioning. Liquid radioactive waste which formed this discharge stream is now treated by evaporation on the Aldermaston site.
- There are a number of private boreholes in the survey area including boreholes used for drinking water on both the Aldermaston and Burghfield sites. Freshwater ponds on the Aldermaston site are used for coarse fishing by members of the AWE employees' angling club.
- Control measures taken against wildlife in order to limit the possibility that contamination is transferred off-site included periodical culling of rabbits and discouraging pigeons from roosting.

- Potential exposure pathways and activities in the area included: angling, walking and dog walking at the country park to the west of the Aldermaston site; bird watching on numerous Sites of Special Scientific Interest around the Aldermaston site; crayfish trapping and angling on the River Kennet and angling on the Kennet and Avon Canal; a travellers site to the west of the Aldermaston site; and playing fields situated to the south-west of the Aldermaston site.

Interviews were conducted with individuals who were identified in the pre-survey preparation and others that were identified during the fieldwork. These included, for example, commercial crayfish trappers, commercial trout farmers, anglers, houseboat dwellers, farmers, allotment holders, gardeners, beekeepers and people living, working and undertaking recreational activities close to the site. Interviews were used to establish individuals' consumption, occupancy and handling rates relevant to the aquatic, terrestrial and direct radiation survey areas. Any other information of possible use to the survey was also obtained. Gamma dose rate measurements were taken over bankside substrates in the aquatic area, and indoors and outdoors at most properties in the direct radiation survey area where interviews were conducted. Background gamma dose rates were taken at a distance beyond 5 km from the site centres.

For practical and resource reasons, the survey did not involve the whole population in the vicinity of the Aldermaston and Burghfield sites, but targeted subsets or groups, chosen in order to identify those individuals potentially most exposed to radiation pathways. However, it is possible that even within a subset or group there may have been people not interviewed during the survey. Therefore, to aid interpretation, the number of people for whom data were obtained in each group as a percentage of the estimated complete coverage for that group (where it was possible to make such an estimate) has been calculated. The results are summarised in Table 1. The 'groups' are described and quantified, and the numbers of people for whom data were obtained are given as percentages of the totals. For certain groups, such as anglers, it can be virtually impossible to calculate the total number of people who undertake the activity in the survey area because it is difficult to quantify visitors from outside the area or occasional visitors during the year. Based on UK Office of National Statistics residential data for electoral wards (www.statistics.gov.uk) there were approximately 67,400 people living in the Aldermaston and Burghfield terrestrial survey area, although information was obtained for a significantly smaller number than this. It should be noted that the survey did not include employees or contractors at the Aldermaston and Burghfield nuclear sites while they were at work. This is because dose criteria applicable to these people whilst at work and the dose assessment methods are different from those for members of the public. However, data were collected for employees and contractors while outside work if these people were encountered during the survey.

People were initially questioned about their habits relating to the survey area that their first identified activity occurred in and, where possible, they were also asked about their habits relating to the other two survey areas. For example, people in the terrestrial survey were initially questioned because it was known that they grew or produced significant quantities of terrestrial foodstuffs. However, they

were also asked about habits that might lead to exposure to liquid discharges or direct radiation. During interviews with representatives from groups of people, such as employees at businesses located within the direct radiation survey area, it was not possible to collect data for all pathways (for example consumption of local foods) for each person. In these cases, the data were limited to those relating to the primary reason for the interview, for example, in the case of a business, the occupancy rates within the direct radiation survey area for the employees.

3 METHODS FOR DATA ANALYSIS

3.1 Data recording and presentation

Data collected during the fieldwork were recorded in logbooks. On return to the laboratory, the data were examined and any notably high rates were double-checked, where possible, by way of a follow-up phone call. In cases where follow-up phone calls were not possible (e.g. interviewees who wished to remain anonymous), the data were accepted at face value. The raw data were entered into a habits survey database where each individual for whom information was obtained was given a unique identifier (the observation number) to assist in maintaining data quality and traceability.

The results of the individuals' consumption, occupancy and handling rates collected during the survey were grouped and presented in tables with the high-rate group members indicated in bold and with the calculated mean rates for the high-rate group and 97.5th percentile rates. The consumption rates, occupancy rates and handling rates for all groups are presented in Annexes 1 and 2 for adults, children and infants respectively, with the high-rate group members indicated in bold.

Where quantifiable data cannot be obtained from interviews but pathways are believed to exist, it is sometimes necessary to provide estimated habits data for use in dose assessments. These data are presented in Annex 3 and include an estimated consumption rate of freshwater fish. Occupancy and consumption data from the 2002 survey for residents in the Aldermaston >0.25 – 0.5km direct radiation zone are also presented since residents in this zone were unwilling to be interviewed in 2011.

3.2 Data conversion

During the interviews, people could not always provide consumption rates in kilograms per year for food or litres per year for milk. In these circumstances, interviewees were asked to provide the information in a different format. For example, some estimated the size and number of items (e.g. eggs) consumed per year, whereas others gave the number of plants in a crop or the length and number of rows in which the crop was grown per year. The database converted these data into consumption rates (kg y^{-1} for food and l y^{-1} for milk) using a variety of conversion factors. These factors included produce weights (Hessayon, 1990 and 1997 and Good Housekeeping, 1994), edible fraction data researched by Cefas, and information supplied by the Meat and Livestock Commission.

3.3 Rounding and grouping of data

The consumption and occupancy data in the text of this report are rounded to two significant figures, except for values less than 1.0, which are rounded to one decimal place. This method of presentation reflects the authors' judgement on the accuracy of the methods used. In the tables and annexes, the consumption rate data are presented to one decimal place. Occasionally, this rounding process causes the computed values (row totals, mean rates and 97.5th percentiles), which are based on un-rounded data, to appear slightly erroneous. Consumption rates less than 0.05 kg y⁻¹ are presented to two decimal places in order to avoid the value of 0.0 kg y⁻¹. External exposure data are quoted as integer numbers of hours per year.

For the purpose of data analysis, foodstuffs were aggregated into food groups as identified in Table 2. Specific food types relevant to this survey are presented in the subsequent tables. The data are structured into groups when it is reasonable to assume that consistent concentrations or dose rates would apply within the group. For example, when considering terrestrial food consumption, all types of root vegetables are grouped together in a food group called 'root vegetables'. Similarly, for aquatic food consumption, all crustacean species are grouped as 'crustaceans'. For external exposure over bankside sediments, occupancies over the same substrate (e.g. sand) are grouped together.

Data were structured into age groups because different dose coefficients (i.e. the factors which convert intakes of radioactivity into dose) can apply to different ages. The International Commission on Radiological Protection (ICRP) revised its recommendations for the age groupings to be used in radiological assessments and these recommendations were adopted in the 2010 habits survey reports. Consequently, the age ranges used in the habits survey reports prior to 2010 differ from those used currently. The age ranges used in this report and the names used for the age groups, based on the recommendations in ICRP 101 (ICRP, 2007), are listed below, together with those used in reports prior to 2010, for comparison.

Age ranges used from 2010 onwards		Age ranges used in reports prior to 2010	
Name of age group ^a	Age range in group	Name of age group	Age range in group
• Infant	0 to 5-year-old	• 3-month-old	Under 1-year-old
• Child	6-year-old to 15-year-old	• 1-year-old	1-year-old
• Adult	16-year-old and over	• 5-year-old	2-year-old to 6-year-old
		• 10-year-old	7-year-old to 11-year-old
		• 15-year-old	12-year-old to 16-year-old
		• Adult	17-year-old and over

Notes

^a In the 2010 reports only, the infant age group was called the 1-year-old age group and the child age group was called the 10-year-old age group.

Since there are fewer age groups for children in the current regime, there should, in general, be more observations in each group, resulting in greater robustness in the data. However, data for children

since 2010 will not be directly comparable with data for children prior to 2010, since the age ranges in the age groups will be different.

For direct radiation pathways, the data were grouped into distance zones from the nuclear site boundary as a coarse indication of the potential dose rate distribution due to this source of exposure. The bands used in this report were: 0 – 0.25 km; >0.25 – 0.5 km; >0.5 – 1.0 km. These distance bands are also useful when assessing exposure to gaseous discharges.

3.4 Approaches for the identification of high rates

The habits data have been analysed to identify high rates of consumption, occupancy and handling, which are suitable for use in radiological assessments. Three approaches have been used:

Firstly, the 'cut-off' method described by Hunt *et al.* (1982) was used. With the 'cut-off' method, the appropriate high rate was calculated by taking the arithmetic mean of the values between the maximum observed rate and one third of the maximum observed rate. In this report, the term 'high-rate group' is used to represent the individuals derived by the 'cut-off' method. The mean of the high-rate group was calculated for each food group, bankside substrate and handling pathway identified in the survey. In certain cases, using the 'cut-off' method resulted in only one person being in the high-rate group. In these cases, expert judgement was used to decide whether the high-rate group should remain as one individual or whether others should be included. If others were included, the second highest rate was divided by three and all observations above this were included in the high-rate group.

Secondly, the 97.5th percentile rate was calculated for each group by using the *Microsoft Excel* mathematical function for calculating percentiles. The use of percentiles accords with precedents used in risk assessments of the safety of food consumption. It should be noted that the interviewees in this study are often selected and, therefore, the calculated percentiles are not based on random data.

Thirdly, profiles have been produced that give a complete view of the habits of the individual that might lead to exposure to all the discharges and radiation from the site. The profiles are based on values calculated by the 'cut-off' method. The profiled data can be used to assess total dose integrated across all pathways of exposure.

Mean and 97.5th percentile consumption rates for adults based on national statistics have been derived by the Ministry of Agriculture, Fisheries and Food (MAFF) (now a part of the Department for Environment, Food and Rural Affairs, Defra) and the Food Standards Agency (Byrom *et al.*, 1995 and FSA, 2002), and these are referred to as generic rates in this report. The generic rates are used as a baseline for comparison with the observed rates.

The mean rates for the high-rate groups for children and infants for consumption and bankside occupancy pathways have been calculated. However, in cases where few child or infant observations were identified, an alternative approach that may be used for assessments is to estimate the mean rates for the high-rate groups for children and infants by applying scaling ratios to the mean rates for the high-rate groups for adults. Ratios for this purpose for the consumption and bankside occupancy pathways, based on generic 97.5th percentile rates, are provided in Annex 4. The age ranges within the age groups in Annex 4 do not correspond exactly with the age ranges within the age groups used throughout the rest of this report, but these ratios are the best available data for estimating child rates and infant rates from adult rates.

For use in assessments of foetal dose, consumption and occupancy rates are provided in Annex 5 for women of childbearing age. The age range used in this report for women of childbearing age is 15 – 44 years old, which is based on the classification, used by the Office of National Statistics (www.statistics.gov.uk).

For the direct radiation pathway, mean occupancy rates and 97.5th percentile rates have not been calculated. Such an analysis is of limited value without a detailed knowledge of the spatial extent of dose rates due to direct radiation.

3.5 Data quality

To ensure the quality of the data collected during the survey fieldwork and presented in the report, the following procedures have been employed:

- Experienced scientific staff were used for the fieldwork and data analysis. They had been trained in the techniques of interviewing and obtaining data for all pathways that were relevant to the survey being conducted. Where individuals offered information during interview that was considered unusual, they were questioned further in order to double-check the validity of their claims.
- Where possible, interviewees were contacted again to confirm the results of the initial interview if, when final consumption or occupancy rates were calculated, observations were found to be high in relation to our experience of other surveys. Local factors were taken into account in these cases.
- Data were manipulated in a purpose-built database using a consistent set of conversion factors.
- Data were stored in a database in order to minimise transcription and other errors.
- Draft reports were reviewed by the Environment Agency, the Food Standards Agency and the Office for Nuclear Regulation, and by a senior radiological consultant.

- Final reports were only issued when the Environment Agency, the Food Standards Agency and the Office for Nuclear Regulation were entirely satisfied with the format and content of the draft report.

4 AQUATIC RADIATION PATHWAYS

4.1 Aquatic survey area

The aquatic survey area, shown in Figure 1, was in two parts; waterways to the north of the Aldermaston site, which receive liquid discharges via a small stream containing surface water runoff from a historically contaminated area of the site; and Silchester Brook to the south of the site, which receives treated effluent from the Silchester Sewage Treatment Works. The Silchester Brook was included because the Silchester Sewage Treatment Works receives discharges from the Aldermaston site via a sewer. The waterways to the north of the site included the stream that leaves the Aldermaston site, the Aldermaston Park Lake into which the stream flows, the Aldermaston Stream, which takes water from the lake to the River Kennet, the River Kennet from where the stream enters it to its confluence with the Kennet and Avon Canal, and approximately 1 km of the canal from the confluence downstream to Tyle Mill Lock. In the 2002 habits survey report the aquatic survey area also included the River Thames downstream of the Pangbourne discharge pipe to the Mapledurham weir; this section of the River Thames was not included in the 2011 aquatic survey area as the Pangbourne outfall closed in 2005 and is no longer receiving liquid discharges from the Aldermaston site.

No aquatic survey area was considered for Burghfield as the site does not discharge liquid radioactive wastes.

Waterways which do not receive liquid waste discharges, but are subject to deposition from gaseous discharges, are considered in the terrestrial section of this report (See Section 5).

The terms 'left bank' and 'right bank' are used to describe locations in the following section and they refer to the left and right hand sides of the waterway as seen by an observer facing downstream.

The discharge stream and Aldermaston Park Lake

The surface water runoff from the northern part of the Aldermaston site was impounded on site in the North Pond system and released periodically down a small stream that leaves the site and flows through the woodland of Aldermaston Park before entering the Aldermaston Park Lake. For the most part the stream, which was less than 1 m wide, ran through dense undergrowth, but there was a small stretch close to the lake where access was possible. Potentially, this is an area where children might play in the stream, but the bank was not trodden and no activities were observed taking place at the time of the survey.

Aldermaston Park Lake (see Figure 5) was used for coarse fishing by a recently opened angling syndicate, with approximately 30 members, operating a strict catch and release policy. Anglers reported that there are only small fluctuations to the water level of the lake. Water flows out of the lake through a series of culverts and ponds and leaves the grounds of Aldermaston Park as the Aldermaston Stream.



Figure 5. Aldermaston Park Lake

Aldermaston Stream

The Aldermaston Stream was slow moving during the survey and was less than 1 m in width (see Figure 6). It flows through private land in Aldermaston Village and runs underground in places. To the north of the village it passes alongside a sewage works and an allotment site before cutting across farmland to join the River Kennet near Padworth. For most of the stream's length the banks were either fenced off or overgrown with vegetation, but there was one small section in the corner of a field where livestock were able to gain access to the stream and drink from it. Water from the stream was used to irrigate fruit and vegetables but no other public activity was observed along the Aldermaston Stream during the survey. A small stretch of the Aldermaston Stream was within the direct radiation survey area.



Figure 6. Aldermaston Stream

River Kennet

The River Kennet (see Figure 7) receives water from the Aldermaston Stream near Padworth. The river flows from south-west to north-east for approximately 2.5 km to Ufton Bridge, where it merges with the Kennet and Avon Canal. The river was slow moving at the time of the survey. Parking was available in a lay-by, on the grass verge at Padworth Bridge or in a small secure car park reserved for angling club members at Ufton Bridge.

A commercial signal crayfish trapping business operated occasionally along the River Kennet and the Kennet and Avon Canal. There were two coarse fish angling clubs, operating a strict catch and release policy, which held the fishing rights along the stretch of the River Kennet included in the aquatic survey area. One club held the fishing rights along the river from Padworth Mill to Padworth Bridge and the other club held the fishing rights from Padworth Bridge to Ufton Bridge.

From Padworth Mill to Padworth Bridge a rough path ran along a steep bank (approximately 5 metres high) on the left bank of the river, which was used for walking and dog walking. However this bank was very high and was unlikely to be flooded, except in the most extreme of circumstances. For this reason, people conducting activities exclusively on the path were not counted in the aquatic survey. A few access points to the water's edge were cut out of the steep banks on the left hand river bank for anglers, although no anglers were observed using these during the survey. The right bank was lower

to the water's edge but could only be reached by a difficult walk from Padworth Bridge through overgrown and fenced areas and along a narrow path by the edge of the water. A fence running close to the water's edge prevented livestock on the surrounding farmland reaching the water, apart from one small section where the fence line went into the water allowing the livestock access. One angler was observed during the survey fishing from the right bank of the river.

Between Padworth Bridge and Ufton Bridge the right hand bank of the river was accessible by a rough path passing through farmland and woodland; here the banks were low with easily accessible angling spots and a number of anglers were observed during the survey. There was no public access to the left bank of the river along this stretch.



Figure 7. River Kennet

Kennet and Avon Canal

From the point where the River Kennet joined the Kennet and Avon Canal at Ufton Bridge the aquatic survey area continued for approximately 1 km down the canal to Tyle Mill Lock. The water flowed slowly along the canal during the time of the survey. The canal banks were mainly grass but in a few places they had collapsed, exposing areas of mud, sand and stones, which were used as angling places. There was no public access to the left bank of the canal. A towpath runs along the top of the right bank (see Figure 8) and was popular with walkers, cyclists and dog walkers. However, as the canal water level was controlled it was unlikely to be flooded, except in the most extreme of circumstances. For this reason, people conducting activities exclusively on the tow path were not included in the aquatic survey. A number of narrow boats were observed passing through the stretch of canal in the aquatic survey area. Several permanent houseboats were moored along the canal and

one canoeist was observed. An angling club, operating a strict catch and release policy, held the fishing rights from Ufton Bridge to Tyle Mill Lock; this club also held the fishing rights from Padworth Bridge to Ufton Bridge along the River Kennet. Parking was available in a public car park at Tyle Mill Lock.



Figure 8. Kennet and Avon Canal

Silchester Brook

To the south of the site the trade waste effluent from the Aldermaston site flows through a sewer directly to the Silchester Sewage Treatment Works. The treated effluent is discharged from the eastern side of the sewage treatment works into the Silchester Brook (see Figure 9), which is approximately 2 metres wide at this point. (The name of the brook changes in various places and although it is called Silchester Brook in this area, it is called the Foudry Brook along the greater part of its length. It was referred to as the Foudry Brook in the 2002 habits report). The brook was partially fenced and overgrown and there was no easy public access to it in this area. The brook flows south across farmland and through woodland, emerging at a clearing where the brook is approximately 7 metres wide and has banks of mud and stones. This clearing could potentially be an area where children could play in the water, although no activities were observed during the survey.



Figure 9. Silchester Brook

4.2 Commercial fisheries

One commercial signal crayfish trapping business was identified which operated along the River Kennet and the Kennet and Avon Canal. There were two people who set the traps, mainly during the summer months, but no consumption was reported. The catch was exported to Europe via fish dealers.

Commercial crayfish trapping and a trout farm were identified in waters potentially subject to gaseous discharges, but not to liquid discharges, and these are included in the terrestrial section of this report.

Setting traps to catch eels was not permitted in the waterways relevant to the survey and no commercial trapping for eels was noted.

4.3 Angling

Angling from the river or canal bank was a popular activity in the aquatic survey area. Two angling clubs held the fishing rights along stretches of the River Kennet and the Kennet and Avon Canal included in the aquatic survey area, although not all members fished in the survey area as the clubs' fishing rights extended to waterways beyond its limits. Both clubs operated a strict catch and release policy. Like all rivers and canals in England the River Kennet and the Kennet and Avon Canal were subject to a 'closed season' lasting from 15th March to 15th June each year, during which time no angling for coarse fish is permitted.

4.4 Sewage Treatment Works

Activities at the Silchester Sewage Treatment Works were investigated because liquid waste from the Aldermaston site is discharged via the sewer to this works. The Silchester Treatment Works is located to the south-west of Silchester. The trade waste effluent from Aldermaston enters the sewerage system where it mixes with sewage from other sources before entering the sewage treatment works. At the works the sewage goes into tanks where the solid matter settles out to form sludge. The treated water, which may still contain radionuclides in liquid phase, is then discharged via the outfall to the Silchester Brook at NGR SU 622 611. The sludge is transported by road tankers to the Basingstoke, Newbury or Reading Treatment Works where it is mixed with sludge from other areas of the county and further processed, before being distributed nationally to farms for use as field dressing. The employees at the Silchester Sewage Treatment Works spend time in close proximity (<10 m) to the sewage sludge during processes such as maintaining pumps, transferring sludge to tankers, monitoring pipe work and pumps and cleaning filters, inlet pipes and rag traps.

4.5 Other pathways

The irrigation of fruit and vegetables using water from the Aldermaston Stream was identified.

4.6 Food consumption data

No interviewees were consuming aquatic foods from the aquatic survey area. However, there were unconfirmed reports that fish from the River Kennet and the Kennet and Avon Canal were being caught and consumed. It is suggested that a consumption rate of 1 kg y⁻¹ of coarse fish (for example, carp, pike or perch) is considered for assessment purposes (see Annex 3).

Freshwater fish and freshwater crustaceans were consumed from waterways within the terrestrial survey area. These foods are included in the terrestrial section of this report since the source of potential exposure is from the washout of gaseous discharges.

4.7 Bankside occupancy

Bankside occupancy rates for adults and individuals in the child age group are presented in Table 3 and Table 4, respectively. It should be noted that there is often more than one substrate at one named location. Activities were assigned to the predominant substrate over which they were taking place.

Adults' bankside occupancy rates

Adults were identified undertaking activities over the following two types of substrate:

- Grass
- Mud, sand and stones

Table A presents a summary of the adults' bankside occupancy rates in the aquatic survey area. The table includes the mean occupancy rates for the high-rate groups and the observed 97.5th percentile rate where applicable.

Table A. Summary of adults' bankside occupancy rates					
Bankside substrate	Number of observations	Number of people in the high-rate group	Maximum of the high-rate group (h y⁻¹)	Mean of the high-rate group (h y⁻¹)	97.5th percentile (h y⁻¹)
Grass	7	3	912	664	862
Mud, sand and stones	1	1	6	6	Not applicable

The following activities were undertaken by people in the adult high-rate groups for occupancy over bankside substrates. For grass, the activity undertaken was angling at Aldermaston Park Lake and along the Kennet and Avon Canal. For mud, sand and stones, the activity was angling at Ufton Bridge on the Kennet and Avon Canal.

Children's bankside occupancy rates

Individuals in the child age group were identified undertaking activities over the following bankside substrate:

- Mud, sand and stones

Table B presents a summary of the children's bankside occupancy rates in the aquatic survey area. The table includes the mean occupancy rate for the high-rate group and the observed 97.5th percentile rate.

Table B. Summary of children's bankside occupancy rates					
Bankside substrate	Number of observations	Number of people in the high-rate group	Maximum of the high-rate group (h y⁻¹)	Mean of the high-rate group (h y⁻¹)	97.5th percentile (h y⁻¹)
Child age group (6 – 15 years old)					
Mud, sand and stones	2	2	6	6	6

The only activity undertaken by individuals in the child age group high-rate group for occupancy over mud, sand and stones was angling at Ufton Bridge on the Kennet and Avon Canal.

4.8 Gamma dose rate measurements

Gamma dose rate measurements were taken over four bankside substrates. All measurements were taken at a height of 1 metre above the substrate. The results are presented in Table 5 and are summarised below.

- One measurement taken over mud, sand and stones was $0.045 \mu\text{Gy h}^{-1}$
- Three measurements taken over mud and stones ranged from $0.038 \mu\text{Gy h}^{-1}$ to $0.063 \mu\text{Gy h}^{-1}$
- Two measurements taken over mud ranged from $0.045 \mu\text{Gy h}^{-1}$ to $0.054 \mu\text{Gy h}^{-1}$
- One measurement taken over grass was $0.055 \mu\text{Gy h}^{-1}$

For comparison, natural background levels have been estimated at $0.05 \mu\text{Gy h}^{-1}$ over sand, $0.07 \mu\text{Gy h}^{-1}$ over mud and over salt marsh, and $0.06 \mu\text{Gy h}^{-1}$ over other substrates (EA, FSA, NIEA and SEPA, 2011).

4.9 Handling of fishing gear

Handling fishing gear that has become entrained with fine sediment particles during use can potentially give rise to skin exposure from beta radiation. Doses to the skin need consideration as part of the dose limitation system (ICRP, 1991).

Fishing gear can also be a source of gamma exposure due to occupancy in the vicinity of the gear. However, this pathway is minor compared with the exposure received during occupancy over bankside areas and it has therefore been omitted from the report. Handling of angling equipment was not considered to be a significant pathway. Therefore, as in previous surveys, data for this pathway were not collected.

Table 6 presents the adult handling rates of fishing gear. No sediment handling observations were recorded during the survey.

Adults' handling rates of fishing gear

Table C presents a summary of the handling rates of fishing gear for adults. The table includes the mean handling rate for the high-rate group and the observed 97.5th percentile rate.

Table C. Summary of adults' handling rates of fishing gear					
Handling activity	Number of observations	Number of people in the high-rate group	Maximum of the high-rate group (h y⁻¹)	Mean of the high-rate group (h y⁻¹)	97.5th percentile (h y⁻¹)
Handling fishing gear	2	2	80	80	80

The only activity undertaken by adults in the high-rate group for handling fishing gear was handling crayfish traps along the River Kennet and the Kennet and Avon Canal.

4.10 Exposure to sewage sludge

Table 7 shows the occupancy rates in close proximity (<10 m) to sewage sludge for the employees at the Silchester Sewage Treatment Works.

The maximum occupancy rate in close proximity (<10 m) to sewage sludge was 960 h y⁻¹ for seven employees who were maintaining pumps, transferring sludge to tankers, monitoring pipe work and pumps, and cleaning filters, inlet pipes and rag traps at the sewage treatment works.

4.11 Water based activities

Activities taking place in or on the water can lead to ingestion of water and/or inhalation of spray. These pathways are generally considered to be minor in comparison with other exposure pathways such as the ingestion of foods produced in the vicinity of a nuclear site. However, relevant data have been collected for consideration in dose assessments. Mean occupancy rates for the high-rate groups and 97.5th percentile rates have not been calculated.

Activities where there is a high likelihood of the individual's face submerging under water have been classified as activities 'in water', as they are more likely to lead to ingestion of water. All other activities have been classified as activities 'on water'.

There were no adults, children or infants identified with occupancy rates for activities taking place 'in water'.

The occupancy rates for activities taking place 'on water' in the survey area for adults are presented in Table 8. No activities were identified taking place 'on water' for individuals in the child or infant age group.

Activities on the water

The only activity taking place on the water in the aquatic survey area was houseboat dwelling on the Kennet and Avon Canal. The highest occupancy rate 'on water' for adults was 5200 h y⁻¹ for one individual who was living on a houseboat on the canal for part of the year.

5 TERRESTRIAL RADIATION PATHWAYS

5.1 Terrestrial survey areas

The terrestrial survey areas, shown in figure 2, covered all land, watercourses and lakes within 5 km of the site centres of Aldermaston (NGR SU 600 637) and Burghfield (NGR SU 683 680). The Aldermaston and Burghfield site centres are approximately 9 km apart and therefore the terrestrial survey areas around the two sites overlap. Due to the close proximity of the sites, the gaseous discharges from the Aldermaston and Burghfield sites are considered together for the purposes of habits surveys, radiological monitoring and assessments.

The land in the Aldermaston survey area is predominantly a mix of agricultural land and woodland. The main urban centre is the town of Tadley, which is located to the south of the site. Several small villages, including Aldermaston, Woolhampton, Padworth, Brimpton, Silchester and Heath End are scattered throughout the area.

The land in the Burghfield survey area is mainly agricultural but a significant section in the north and north-east is occupied by urban areas of the town of Reading. There are several small villages in the survey area, including Burghfield, Burghfield Common, Mortimer, Beech Hill, Three Mile Cross and Spencers Wood. The M4 motorway bisects the northern part of the area.

Parts of the River Kennet and the Kennet and Avon Canal flow through both the Aldermaston and Burghfield survey areas. Part of the River Enborne runs through the Aldermaston area and there were flooded gravel pits forming a series of freshwater lakes in the northern part of the Burghfield area. The lakes were used for various water sport activities, such as sailing, wakeboarding, windsurfing, canoeing, water-skiing, power boating and jet-skiing. No quantitative data was recorded for these activities.

Twelve working farms were identified in the Aldermaston terrestrial survey area and 13 working farms were identified in the Burghfield terrestrial survey area. One working farm was identified within the overlap of the Aldermaston and Burghfield terrestrial survey areas.

Of the 12 farms in the Aldermaston terrestrial survey area:

- Two produced milk (from dairy cattle) and arable crops
- Three produced beef cattle, lambs and arable crops
- One produced beef cattle and arable crops
- Two produced beef cattle
- Four produced arable crops

Of the 13 farms in the Burghfield terrestrial survey area:

- Two produced milk (from dairy cattle) and arable crops
- Four produced beef cattle and arable crops
- One produced lambs, turkeys and arable crops
- One produced pigs and arable crops
- One produced free range chicken eggs
- Four produced arable crops

The single working farm situated in the overlap of the Aldermaston and Burghfield terrestrial survey area was producing beef cattle.

A variety of crops was produced for human consumption. These included wheat, oats, barley, field beans, peas and oil seed rape. Crops such as wheat, winter barley, maize, fodder beet, grass and silage were grown for use as livestock feed. These were used on the farms on which they were produced or sold to other local farmers. Elephant grass and linseed were also produced. Elephant grass was sold for use as power station fuel and linseed was sold via national merchants and was exported to Europe.

Farmers and their families were consuming beef, pork, lamb, milk and chicken eggs produced on their own farms. Five farmers kept chickens for eggs for their own families' consumption; one farmer also kept bees for honey for his own family's consumption. One farmer kept chickens for eggs and pigs for his own family's consumption. A number of farmers grew fruit and vegetables for their own families' consumption.

Six allotment sites with a total of approximately 275 plots were identified within the survey area. The locations of the allotment sites are shown in Figure 2. Several allotment holders held more than one plot. The allotment holders grew a wide variety of fruit and vegetables, which were consumed by their families and friends.

Six beekeepers were identified in the survey area, three of which were interviewed. One beekeeper had four hives located at Baughurst, to the south-west of the Aldermaston site. Another beekeeper had three hives located to the north of the Burghfield site and a farmer kept three hives on his farmland near Mortimer. The production of honey per hive ranged from 6 kg y⁻¹ to 19 kg y⁻¹. The beekeepers and their families consumed honey from their hives.

One individual was identified who kept ducks, geese and many varieties of chickens. The chickens were kept primarily to compete in shows; however, the chicken and duck eggs and meat were used for the family's own consumption. Several individuals on a country estate kept chickens for eggs for their own families' consumption.

Blackberries, chestnuts, crab apples, damsons, elderberries, hazel nuts, nettles, plums, rosehips, sloes, mushrooms and wild garlic were growing wild in the survey area and these were collected and consumed.

Game shooting took place on many of the farms in the survey area and two organised game shoots were identified. The shooters and their families consumed the shot hare, rabbit, venison, partridge, pheasant, pigeon, Canada goose and mallard. (In habits surveys conducted at coastal sites wild ducks and geese are usually classified as wildfowl and treated as an aquatic pathway. However, in this case they are classified as poultry and treated as a terrestrial pathway, since the site is well inland and there are no significant areas that are potentially affected by liquid discharges where the birds might feed or roost.)

There were many waterways and freshwater lakes in the terrestrial survey area that were potentially affected by the deposition of gaseous discharges. One of the farmers consumed brown trout caught from the River Enborne. A trout farm was identified producing rainbow trout and two people in the survey area were identified who regularly consumed fish from the farm. Two men fishing for signal crayfish commercially were identified trapping and consuming signal crayfish from the River Enborne and freshwater lakes within the terrestrial survey area. Fishing rights to waterways flowing through private land were let to five coarse fishing syndicates with a combined total of approximately 400 members.

The consumption of groundwater by humans and livestock was identified. One hotel to the north of the Aldermaston site extracted water for domestic use from a borehole located in the grounds. A farm situated south-east of the Burghfield site used borehole water to supply the household and livestock. A borehole supplying water to livestock was identified at a farm located south-east of the Aldermaston site. Livestock were also identified as drinking stream, ditch and spring water at four farms. A private landowner held a licence to extract water from a river flowing through his land but was not currently utilising the licence.

5.2 Destination of food originating from the terrestrial survey area

Beef cattle were sold through markets outside the survey area for fattening or to national supermarket chains. Lambs were sent to abattoirs outside the survey area. Pigs were sold to a meat processing factory outside the survey area and turkeys were sold direct to the public from a single farm. Chicken eggs were sold to a national merchant, through local shops, farmers markets and from the door. Ducks eggs were also sold from the door. Milk was sold to national distributors and supermarket chains. Wheat was sold to national buyers for biscuits, bread or milling, oats were sold for use in cereals and barley was sold via national grain merchants for malting. Field beans were exported to the Middle East for human consumption and peas were sold via a national merchant. Oil seed rape was sold to national merchants for oil production. Two beekeepers sold honey from their door and

one sold honey from their place of work. Excess game from the organised shoots was sold to specialist game retailers outside the survey area. Rainbow trout was sold to national supermarket chains. Crayfish were either sold to restaurants nationally or exported to Europe, although some were used to cater for guests at private functions held within the area.

5.3 The transfer of contamination off-site by wildlife

Representatives from the Aldermaston site reported that control measures taken against wildlife in order to limit the possibility that contamination is transferred off-site included using netting to prevent pigeons from entering buildings and periodically culling rabbits.

5.4 Food consumption data

Consumption data for locally produced foodstuffs potentially affected by deposition of gaseous discharges are presented in Tables 9 to 26 for adults and Tables 27 to 42 for children and infants.

In order to provide information relevant to monitoring and assessments studies, the consumption rate data collected during the survey were analysed to indicate the percentage that each food type contributed to each food group. The data are summarised in Table 43 and the foods sampled as part of the 2010 Food Standards Agency monitoring programme (EA, FSA, NIEA and SEPA, 2011) are identified by emboldened italics in the table.

Adults' consumption rates

Consumption of locally produced foods was identified in the following 18 food groups: green vegetables; other vegetables; root vegetables; potato; domestic fruit; milk; cattle meat; pig meat; sheep meat; poultry; eggs; wild/free foods; rabbits/hares; honey; wild fungi; venison; freshwater fish; freshwater crustaceans. No consumption of cereals or freshwater plants was identified. Table D presents a summary of the adults' consumption rates for the foods consumed from the terrestrial survey area. The table includes the mean consumption rates for the high-rate groups and the observed 97.5th percentile rates calculated as in Section 3.4. For comparison, the table also includes mean consumption rates and 97.5th percentile consumption rates based on national data, which are referred to as 'generic' data in this report. No generic data have been determined for venison, freshwater fish or freshwater crustaceans.

Table D. Summary of adults' consumption rates of foods from the terrestrial survey areas

Food group	Number of observations	Number of high-rate consumers	Observed maximum for the high-rate group (kg y ⁻¹ or l y ⁻¹)	Observed minimum for the high-rate group (kg y ⁻¹ or l y ⁻¹)	Observed mean for the high-rate group (kg y ⁻¹ or l y ⁻¹)	Observed 97.5 th percentile (kg y ⁻¹ or l y ⁻¹)	Generic mean (kg y ⁻¹ or l y ⁻¹)	Generic 97.5 th percentile (kg y ⁻¹ or l y ⁻¹)
Green vegetables	177	32	62.4	21.1	35.9	44.8	15.0	45.0
Other vegetables	195	27	68.2	25.5	43.5	57.7	20.0	50.0
Root vegetables	190	14	104.4	42.4	53.8	49.2	10.0	40.0
Potato	183	45	110.0	38.1	56.4	91.8	50.0	120.0
Domestic fruit	138	27	52.6	17.7	26.3	32.9	20.0	75.0
Milk	10	1	591.0	591.0	591.0	500.9	95.0	240.0
Cattle meat	22	22	35.5	15.8	20.4	35.5	15.0	45.0
Pig meat	7	3	75.9	28.5	44.3	68.8	15.0	40.0
Sheep meat	20	6	14.8	11.3	12.5 ^a	14.8	8.0	25.0
Poultry	51	17	9.3	3.4	4.8	8.4	10.0	30.0
Eggs	23	2	164.5	83.0	123.8	119.7	8.5	25.0
Wild/free foods	78	9	7.0	2.5	3.9	5.2	7.0	25.0
Rabbits/hares	7	1	5.4	5.4	5.4	4.7	6.0	15.0
Honey	20	5	5.4	1.9	4.0	5.4	2.5	9.5
Wild fungi	27	9	1.3	0.5	0.7	1.3	3.0	10.0
Venison	11	5	25.0	20.0	24.0	25.0	ND	ND
Freshwater fish^b	6	2	24.0	24.0	24.0	24.0	ND	ND
Freshwater crustaceans^b	3	3	2.0	1.0	1.7	2.0	ND	ND

Notes

ND - Not determined

^a Actual value for sheep meat is 12.47 kg y⁻¹^b Freshwater fish and freshwater crustaceans are included in the terrestrial section of this report since the source of potential exposure, in this case, is from the washout of gaseous discharges.

Four mean consumption rates for the adult high-rate groups were found to be greater than the generic 97.5th percentile consumption rates. These were for root vegetables, milk, pig meat and eggs. Eleven mean consumption rates for the adult high-rate groups exceeded the generic mean consumption rates. These were for green vegetables, other vegetables, root vegetables, potato, domestic fruit, milk, cattle meat, pig meat, sheep meat, eggs and honey. Five observed 97.5th percentile consumption rates exceeded the generic 97.5th percentile consumption rates. These were for other vegetables, root vegetables, milk, pig meat and eggs.

Children's and infants' consumption rates

Forty-one individuals in the child age group and 15 individuals in the infant age group were identified consuming foods from the terrestrial survey area. Table E presents a summary of children's and infants' consumption rates. The table includes the mean consumption rates for the high-rate groups

and the observed 97.5th percentile rates. No generic data have been determined for the child or infant age groups. In the child age group, no consumption of foods from the following food groups was identified: cereals; freshwater fish; freshwater crustaceans; freshwater plants. In the infant age group, no consumption of foods from the following food groups was identified: milk; wild fungi; venison; cereals; freshwater fish; freshwater crustaceans; freshwater plants.

Table E. Summary of children's and infants' consumption rates of foods from the terrestrial survey areas

Food group	Number of observations	Number of high-rate consumers	Observed maximum for the high-rate group (kg y ⁻¹)	Observed minimum for the high-rate group (kg y ⁻¹)	Observed mean for the high-rate group (kg y ⁻¹)	Observed 97.5 th percentile (kg y ⁻¹)
Child age group (6 - 15 years old)						
Green vegetables	26	5	18.2	7.7	12.3	18.2
Other vegetables	24	15	18.6	6.8	12.0	18.6
Root vegetables	26	7	20.1	7.0	13.2	20.1
Potato	24	6	50.0	31.9	38.4	50.0
Domestic fruit	18	5	16.4	8.1	12.5	16.4
Milk	2	2	190.4	190.4	190.4	190.4
Cattle meat	2	2	28.4	18.9	23.7	28.1
Pig meat	2	2	22.8	15.2	19.0	22.6
Sheep meat	2	2	11.9	7.9	9.9	11.8
Poultry	8	2	3.5	1.7	2.6	3.1
Eggs	7	7	8.6	5.2	6.4	8.6
Wild/free foods	15	8	1.7	0.8	1.1	1.7
Rabbit	2	2	0.2	0.1	0.2	0.2
Honey	9	3	1.4	0.6	1.1	1.4
Wild fungi	2	2	0.1	0.1	0.1	0.1
Venison	2	2	2.6	2.6	2.6	2.6
Infant age group (0 - 5 years old)						
Green vegetables	12	4	26.3	9.6	19.3	26.3
Other vegetables	13	3	20.7	8.2	16.6	20.7
Root vegetables	12	4	20.1	7.5	14.3	20.1
Potato	10	1	21.0	21.0	21.0	17.8
Domestic fruit	8	3	5.4	2.5	4.4	5.4
Cattle meat	3	1	9.5	9.5	9.5	9.1
Pig meat	1	1	7.6	7.6	7.6	NA
Sheep meat	1	1	4.0	4.0	4.0	NA
Poultry	1	1	1.7	1.7	1.7	NA
Eggs	2	2	5.9	5.2	5.6	5.9
Wild/free foods	4	1	1.2	1.2	1.2	1.1
Rabbit	1	1	0.1	0.1	0.1	NA
Honey	2	2	0.1	0.04	0.1	0.1

Notes

NA - Not applicable

6 DIRECT RADIATION PATHWAYS

6.1 Direct radiation survey areas

For the Aldermaston site, the direct radiation survey area (shown in Figure 3) covered all land and waterways within 1 km of the licensed site boundary. The occupancy data collected from the direct radiation survey area is also applicable to the direct exposure arising from gaseous releases from the site. Interviews with residents were difficult to obtain at Aldermaston owing to regular demonstrations held by anti-nuclear protestors, which caused local residents to be reluctant to participate in this survey. Because of this, no occupancy rates for residents could be obtained in the >0.25 – 0.5 km zone in Aldermaston, despite there being many residential properties in this zone. Occupancy data were obtained for people undertaking other activities (e.g. working) in this zone. Since residents typically spend more time in direct radiation areas than people undertaking other activities, their omission potentially leads to an under estimate of occupancy rates. Therefore, data from the 2002 survey for residents in the >0.25 – 0.5 km zone are presented in Annex 3. These data can be incorporated in dose assessments.

For the Burghfield site the direct radiation survey area (shown in Figure 4) was defined as all land and waterways within 1 km of the boundary of the eastern half of the nuclear licensed site. The survey area was not based on the boundary of the entire licensed site since no licensed activities take place on the western half of it. The Burghfield site did not contain sources of direct radiation; however, the occupancy data collected from the direct radiation survey area is applicable to inhalation and external exposure pathways arising from gaseous releases from the site. The Burghfield nuclear licensed site occupies only a part of the AWE facilities at Burghfield. Non-licensed areas extend to the north, west and south of the licensed site.

Aldermaston

The land within the Aldermaston direct radiation survey area was a mixture of residential, agricultural and woodland areas. The main residential areas were Heath End and Tadley to the south and Aldermaston Village to the north of the site. Part of the residential area of Pamber Heath was located to the south-east of the site. Located within the residential areas were a number of schools, a community centre, shops, businesses, churches and leisure facilities. There were three large business parks, which were located to the west, south-west and east of the Aldermaston site; two residential mobile home parks located to the east and to the south-east of the site; and a travellers' site located to the west. Most of the land to the west, north and east of the site was a patch work of agricultural land and woodland. Paice's Wood Country Park was adjacent to the western boundary of

the site and was popular with dog walkers; the country park includes seven gravel pit lakes which were available for coarse fishing on a day ticket basis.

Burghfield

The land within the Burghfield direct radiation survey area is largely occupied by non-licensed areas of the AWE site; the remaining land is rural with small patches of woodland and only a few residential streets. One farm was located within the direct radiation survey area and three other farms had fields within the area. Most of the residential properties were located to the south and west of the Burghfield site. A public house and hotel were situated to the south of the site and a small business area was located at the south-western tip of the direct radiation survey area. A sports ground was located just outside the boundary fence of the south-western edge of the Burghfield site.

6.2 Residential activities

Aldermaston

Aldermaston Village is situated to the north of the site and a few of the residential streets are within the >0.5km – 1 km zone. The densely populated town of Tadley and the village of Heath End are located to the south-west of the site with properties present in each of the zones (0 – 0.25 km; >0.25 – 0.5 km; >0.5 – 1 km). Interviews were conducted at seven residences in the Aldermaston area, with a combination of single occupants, retired people and families with children. Four of these residences were within the 0 – 0.25 km zone, no residents were interviewed in the >0.25 – 0.5 km zone (since those approached were reluctant to participate in the survey) and three residences were within the >0.5 – 1.0 km zone.

Burghfield

No occupied residences were identified within the 0 – 0.25 km or >0.25 – 0.5 km zones. Most of this land was taken up by non-licensed areas of the Burghfield site. A few residential streets are situated within the >0.5 – 1 km zone and these are mainly located around the small hamlet of Grazeley Green. To the west, a road with residential properties runs adjacent to the perimeter fence of the non-licensed site. Several of these properties were unoccupied at the time of the survey. Interviews were conducted at 11 residences, with a combination of single occupants, retired people and families with children.

6.3 Leisure activities

Aldermaston

Angling and dog walking were popular activities at the Paice's Wood Country Park to the west of the site and around the Aldermaston Park Lake to the north. Walking and dog walking were also noted along the tracks and paths in the wooded areas to the east of the site. Various sports grounds and recreational areas were identified but no observations were obtained during the time of the survey. In addition, there were shops, a community centre, a children's centre, a banger car racing track, an off road motor sport track, churches, public houses and a hotel.

Burghfield

In the Burghfield survey area a number of footpaths were noted although no walkers were observed during the time of the survey. One public house and a hotel were also situated in this area.

6.4 Commercial activities

The activities of Aldermaston and Burghfield site employees and contractors while at work were not considered in the direct radiation survey, as radiation workers are subject to different radiation protection criteria.

Aldermaston

The main locations for employment in the area were concentrated on three business parks; these included approximately 200 units in total, although not all of the units were occupied. There were a wide variety of businesses, employing a large number of staff. Interviews were conducted with 16 of these businesses, four of which were in the 0 – 0.25 km zone and twelve of which were in the >0.25 – 0.5 km zone. Two working farms were located within the >0.5 – 1.0 km zone, one of which was interviewed. In addition, there was a hotel, a children's centre and other businesses within the survey area.

Burghfield

Three businesses, one working farm, horse stables, a public house and a hotel were within the survey area. Interviews were conducted at the working farm which was situated in the >0.5 – 1.0 km zone.

6.5 Educational activities

Aldermaston

One primary school was located within the >0.25 – 0.5 km zone and two private schools were situated within the >0.5 – 1 km zone, one of which was interviewed. Generic data for staff and children were obtained from representatives at the school. There were 36 staff and 220 pupils whose ages ranged from 3 to 11 years old. A representative number of staff and children have been included in the data analysis in this report.

Burghfield

There were no schools identified within the Burghfield direct radiation survey area.

6.6 Occupancy rates

Tables 44 and 45 present indoor, outdoor and total occupancy data for adults, children and infants at the Aldermaston and Burghfield sites respectively. An analysis of the data by distance zones and occupancy rates for both sites is shown in Table 46. A summary of occupancy rates in the direct radiation survey areas is presented in Table F.

Table F. Summary of occupancy rates ($h\ y^{-1}$) in the Aldermaston and Burghfield direct radiation survey areas				
Zone	Number of observations	Highest indoor occupancy ($h\ y^{-1}$)	Highest outdoor occupancy ($h\ y^{-1}$)	Highest total occupancy ($h\ y^{-1}$)
Aldermaston 0 - 0.25 km	41	7338	2190	8136
Aldermaston^a >0.25 - 0.5 km	87	3087	960	3185
Aldermaston >0.5 - 1.0 km	12	7806	3325	8082
Burghfield 0 – 0.25km	No occupied residential properties identified			
Burghfield >0.25 - 0.5 km	No occupied residential properties identified			
Burghfield >0.5 - 1.0 km	42	8080	1750	8500

Note

^a The occupancy rates in this zone are underestimated since the residents approached, who would have higher times in the area, declined to participate in the survey. Therefore, data from the 2002 survey for residents in this zone are presented in Annex 3, for use in dose assessments.

0 - 0.25 km zone

Aldermaston

Occupancy data were collected for 41 individuals in the 0 - 0.25 km zone. The observations were for nine residents, one of whom also ran a part time business from home and 32 employees of other businesses. The highest indoor occupancy rate was for two individuals resident in the same house. The highest outdoor and total occupancy rates were for a resident who also ran a part time business from home.

Burghfield

There were no occupied residential properties identified in the 0 – 0.25 km zone in the Burghfield direct radiation survey area.

>0.25 - 0.5 km zone

Aldermaston

Occupancy data was collected for 87 individuals in the >0.25 - 0.5 km zone. The observations were for 63 employees, 14 school pupils, one farmer, one farm worker, five anglers and three dog walkers. Three employees had the same highest indoor and total occupancy rates and a farm worker had the highest outdoor occupancy rate. It would be expected that residents would have higher occupancy times than those recorded but the residents approached in this zone declined to be interviewed in 2011.

Burghfield

There were no occupied residential properties identified in the >0.25 – 0.5 km zone in the Burghfield direct radiation survey area.

>0.5 - 1.0 km zone

Aldermaston

Occupancy data were collected for 12 people in the >0.5 - 1.0 km zone. The observations were for 10 residents, a farmer and one farm worker. Two individuals resident at the same house had the highest indoor and total occupancy rates. A farmer who lived in the area had the highest outdoor occupancy rate.

Burghfield

Occupancy data were collected for 42 people in the >0.5 – 1.0 km zone. The observations were for 26 residents, a farmer, three farm workers and 12 visitors to the area. An elderly resident had the highest indoor and total occupancy rate and a farmer who lived in the area had the highest outdoor occupancy rate.

6.7 Gamma dose rate measurements

Gamma dose rate measurements were taken indoors and outdoors at most properties where interviews were conducted in the Aldermaston and Burghfield direct radiation survey areas. Outdoor measurements were taken approximately 5 to 10 metres from the nearest building. Gamma dose rate measurements over rough grass were taken at locations at distances further than 5 km from the site centre to obtain background dose rates. All measurements were taken at a height of 1 metre above the substrate. It should be noted that the indoor and outdoor measurements have not been adjusted for background dose rates. The results are presented in Table 47 and are summarised below.

Indoor measurements

- Six measurements taken over wood ranged from 0.056 $\mu\text{Gy h}^{-1}$ to 0.095 $\mu\text{Gy h}^{-1}$
- One measurement taken over stone was 0.098 $\mu\text{Gy h}^{-1}$
- Seventeen measurements taken over concrete ranged from 0.048 $\mu\text{Gy h}^{-1}$ to 0.104 $\mu\text{Gy h}^{-1}$

Outdoor measurements

- Twenty-one measurements taken over grass ranged from 0.054 $\mu\text{Gy h}^{-1}$ to 0.082 $\mu\text{Gy h}^{-1}$
- Three measurements taken over concrete ranged from 0.054 $\mu\text{Gy h}^{-1}$ to 0.058 $\mu\text{Gy h}^{-1}$
- Two measurements taken over tarmac ranged from 0.047 $\mu\text{Gy h}^{-1}$ to 0.053 $\mu\text{Gy h}^{-1}$
- One measurement taken over soil was 0.072 $\mu\text{Gy h}^{-1}$

Background measurements

- Two measurements taken over grass ranged from 0.054 $\mu\text{Gy h}^{-1}$ to 0.072 $\mu\text{Gy h}^{-1}$
- Two measurements taken over soil ranged from 0.062 $\mu\text{Gy h}^{-1}$ to 0.066 $\mu\text{Gy h}^{-1}$

Comprehensive studies of background radiation have been carried out on a national scale by the Radiation Protection Division of the Health Protection Agency (previously the National Radiological Protection Board), the most recent of these being a review conducted in 2005 (Watson *et al*, 2005). The results from the 2005 review could be used for comparison with the data collected during this survey.

7 USES OF HABITS DATA FOR DOSE ASSESSMENTS

7.1 Combined pathways

In determining habits data for the purposes of assessing radiological doses to the public, it may be necessary to consider a combination of pathways. Data are provided in Annex 1 and Annex 2 so that the full effect of combining pathways can be assessed for individual observations, given the concentrations and dose rates for a particular assessment. The rates for individuals in the high-rate groups are emboldened. In some circumstances, it will be possible to make simplifying assumptions and define the consumption and external exposure rates appropriate to a series of potential high-rate groups.

The most extensive combinations of pathways for adult dose assessment are shown in Table 48. Each of the 19 combinations shown in Table 48 represents an actual individual (or individuals) from Annex 1 who has positive data (irrespective of the magnitude), for each pathway marked with a cross. It should be noted that combination numbers in Table 48 do not correlate directly with observation numbers in Annex 1. Other individuals from Annex 1 have combinations that are not listed in Table 48 because they have fewer pathways and a dose assessment for them would be adequately covered by one of the 19 listed combinations.

7.2 Foetal dose assessment

Dose assessment of the foetus was introduced routinely for the first time in the Radioactivity in Food and the Environment report for 2005 (EA, EHS, FSA and SEPA, 2005), following the publication of recommendations by the Radiation Protection Division of the Health Protection Agency (National Radiological Protection Board, 2005). The adopted approach is to use the consumption and occupancy data for women of childbearing age in order to calculate the potential dose to the foetus. Therefore, consumption and occupancy data collected during the Aldermaston and Burghfield habits survey for females of childbearing age are presented in Annex 5. The Office of National Statistics classifies women to be of childbearing age if they are between 15 and 44 years old (www.statistics.gov.uk); this age range has been used in Annex 5. It was not possible to collect ages for all female observations during the habits survey. However, these females with unknown ages have been included in Annex 5 as they might be women of childbearing age.

7.3 Total dose assessment

The environment agencies and the Food Standards Agency have considered ways of using habits data to calculate total dose retrospectively. The adopted approach is to use the adult consumption and occupancy data collected in each habits survey to create a matrix with a series of habits profiles for each site. The relevant matrix for the Aldermaston and Burghfield adults' profiled habits data is shown in Annex 6. The National Dose Assessment Working Group (NDAWG) has considered this approach to assessing retrospective total doses (Camplin *et al*, 2005) and has agreed that using habits profiles is an appropriate approach. Retrospective total doses around Aldermaston and Burghfield are made using these profiles and reported in the Radioactivity in Food and the Environment reports (e.g. EA, FSA, NIEA and SEPA, 2010). Additionally, profiles have been created for the child and infant age groups, and for women of childbearing age. These are shown in Annexes 7, 8, and 9 respectively. They are not currently used in the Radioactivity in Food and the Environment reports.

Note that there were many residential properties in the Aldermaston >0.25 – 0.5km zone but that the residents who were approached were unwilling to be interviewed during the 2011 survey, although data were obtained for people undertaking other activities in this zone. Since residents typically spend more time in direct radiation areas than people undertaking other activities (e.g. working) this leads to a potential underestimate of occupancy rates. Therefore, data obtained for residents in the Aldermaston >0.25 – 0.5km zone from the 2002 survey have been incorporated into the data used to produce the profiles for 2011. The 2002 results included occupancy data for adults, infants and women of child bearing age but not children. The adults were also consuming small quantities of foods from the 'other vegetables' and 'domestic fruit' food groups and these consumption rates have been included in the adult profile. See Annex 3 for the 2002 occupancy and consumption data.

8 COMPARISONS WITH THE PREVIOUS SURVEY

The results from this 2011 survey can be compared with results from the last Aldermaston and Burghfield habits survey, undertaken in 2002. The aquatic survey area in the 2011 survey was the same as that used in 2002 except that the section of the River Thames between Pangbourne and Mapledurham, that was included in the survey area in 2002, was not included in the 2011 survey because the Pangbourne outfall closed in 2005 and the River Thames is no longer receiving liquid discharges from the Aldermaston site. The terrestrial survey area in 2011 was very slightly different to that in 2002 since the position taken as the centre of the Aldermaston site in 2011 was approximately 250 m south of the position used in 2002. This alteration had little effect on the activities observed in the area. The direct radiation survey area in the 2011 survey was the same as in the 2002 survey. All comparisons for consumption, bankside occupancy, handling and occupancy rates in the direct radiation area are for adults only.

8.1 Aquatic survey area

The only food consumed from the aquatic survey area in 2002 was signal crayfish. No interviewees were consuming foods from the aquatic survey area in 2011. However, in 2011, it was reported that people were consuming coarse fish from the aquatic survey area. No quantitative data could be obtained and it is suggested that a consumption rate of 1 kg y⁻¹ of coarse fish is used for assessment purposes, see Annex 3.

A comparison between the 2002 and 2011 data for the consumption of aquatic foods is presented in Table G. The mean consumption rate for the adult high-rate group for crustaceans was 1.2 kg y⁻¹ in 2002 but no consumption of crustaceans was identified in 2011. The family that had been consuming crustaceans in 2002 were interviewed in 2011 and were no longer eating crustaceans from the aquatic survey area.

Table G. Comparison between 2002 and 2011 consumption rates of aquatic food groups for adults

Food group	2002			2011		
	Number in high-rate group	Maximum consumption rate (kg y ⁻¹)	Mean consumption rate for the high-rate group (kg y ⁻¹)	Number in high-rate group	Maximum consumption rate (kg y ⁻¹)	Mean consumption rate for the high-rate group (kg y ⁻¹)
Freshwater crustaceans	2	1.2	1.2	Not identified		

For bankside occupancy in 2002, the substrate was not recorded but is assumed to be grass. In 2011, activities were recorded over grass and over mud, sand and stones. The only activity undertaken over grass by the individuals in the high-rate group in 2002 was crayfish trapping and in 2011, the only activity undertaken by the individuals in the high-rate group was angling. In 2011, the only activity undertaken over mud, sand and stones by the individual in the high-rate group was angling.

The only activity for individuals handling fishing gear in 2002 and 2011 was handling crayfish traps. No sediment handling activities were identified in 2002 or 2011.

A comparison between the 2002 and 2011 data for occupancy over bankside substrates and handling fishing gear is shown in Table H.

Table H. Comparison between 2002 and 2011 bankside occupancy rates and handling rates of fishing gear for adults

Bankside substrate or handling pathway	2002			2011		
	Number in high-rate group	Maximum occupancy or handling rate (h y^{-1})	Mean occupancy or handling rate for the high-rate group (h y^{-1})	Number in high-rate group	Maximum occupancy or handling rate (h y^{-1})	Mean occupancy or handling rate for the high-rate group (h y^{-1})
Grass^a	2	320	320	3	912	664
Mud, sand and stones	Not identified			1	6	6
Handling fishing gear	2	320	320	2	80	80

Notes

^aThe bankside substrate was assumed to be grass in 2002

There was a significant increase in the mean bankside occupancy rate for the high-rate group for grass in 2011 compared to 2002. This increase was attributed to a new angling syndicate forming within the aquatic survey area with a number of keen members. Occupancy over mud, sand and stones was identified at a low rate in 2011 but was not identified at all in 2002. The handling rate for fishing gear decreased significantly in 2011 compared with 2002. This decrease was attributed to the crayfish trappers fishing at locations outside the aquatic survey area.

Occupancy rates for adults in close proximity to sewage sludge were recorded in 2011 but this pathway was not considered in 2002 and no data were recorded. In 2011, the occupancy rate for seven people in close proximity (<10m) to the sewage sludge was 960 h y^{-1} .

8.2 Terrestrial survey areas

There had been some notable changes to farming practices in 2011 compared to 2002. The principal types of farm produce continued to be a mix of beef cattle, lambs, milk (from dairy cattle), pigs, poultry, eggs and arable crops, but six farms had stopped keeping dairy cattle and three had stopped keeping beef cattle, switching instead to arable crops. Ten of the farms interviewed in 2002 had become residences with the land being taken over by other farms, or had ceased to produce foods for human consumption and now grew horse feed and kept horses. In both surveys, six allotment sites were identified and the allotment holders and gardeners were producing a variety of fruit and vegetables. In 2002 a market garden was identified but this had since closed as the owner had retired.

Freshwater fish were consumed from waterways within the terrestrial survey area in 2002 and 2011; these foods are included in the terrestrial section of this report since the source of potential exposure is from the washout of gaseous discharges.

The mean consumption rates for the adult high-rate group for terrestrial food groups from the 2002 and 2011 surveys are shown in Table I.

Table I. Comparison between 2002 and 2011 mean consumption rates for the adult high-rate groups for terrestrial food groups (kg y⁻¹ or l y⁻¹)

Food group	2002	2011
Green vegetables	45.4	35.9
Other vegetables	43.9	43.5
Root vegetables	43.0	53.8
Potato	72.1	56.4
Domestic fruit	38.9	26.3
Milk	233.0	591.0
Cattle meat	41.5	20.4
Pig meat	21.1	44.3
Sheep meat	13.8	12.5
Poultry	25.9	4.8
Eggs	20.8	123.8
Wild/free foods	3.5	3.9
Rabbits/hares	3.2	5.4
Honey	9.9	4.0
Wild fungi	3.0	0.7
Venison	3.4	24.0
Freshwater fish	1.2	24.0
Freshwater crustaceans	Not identified	1.7

Consumption rates increased in 2011 in the following eight food groups: root vegetables; milk; pig meat; eggs; wild/free foods; rabbits/hares; venison; freshwater fish. The consumption of freshwater crustaceans was identified in 2011 but not in 2002. Consumption rates decreased in 2011 in the following nine food groups: green vegetables; other vegetables; potato; domestic fruit; cattle meat; sheep meat; poultry; honey; wild fungi. There were relatively large increases in the consumption rates for milk, pig meat, eggs, venison and freshwater fish. There were also relatively large decreases in the consumption rates for potato, domestic fruit, cattle meat, poultry, honey and wild fungi. No consumption of cereals or freshwater plants was identified in either 2002 or 2011.

The steep increase in the mean consumption rate for the high-rate group of milk consumers was due to a single high rate consumer who lived on a dairy farm. The large increases in the mean rate for the high-rate group of eggs and freshwater fish were attributed to new people involved in the production of these foods who consumed greater amounts of their own produce than previous producers. The decrease in the mean rate for the high-rate group of cattle meat consumers was attributed to the reduction in the number of farms producing beef cattle. No specific reasons were identified for the other changes in consumption rates.

The human consumption of groundwater and the use of groundwater and surface water for the drinking supply for livestock were identified in 2011, but these pathways were not investigated in 2002.

8.3 Direct radiation survey areas

Activities identified in the direct radiation survey areas in 2002 and 2011 were similar and included people residing, working, attending schools, visiting, farming, angling, and dog walking. A comparison between the 2002 and 2011 direct radiation occupancy rates, by zone, is presented in Table J.

Table J. Comparison between 2002 and 2011 direct radiation occupancy rates ($h\ y^{-1}$)				
	2002		2011	
	Aldermaston	Burghfield	Aldermaston	Burghfield
0 - 0.25 km zone				
Highest indoor	8710	Not identified	7338	Not identified
Highest outdoor	3076	Not identified	2190	Not identified
Highest total	8710	Not identified	8136	Not identified
>0.25 - 0.5 km zone				
Highest indoor	8748	7470	3087 ^a	Not identified
Highest outdoor	3170	1158	960 ^a	Not identified
Highest total	8748	7795	3185 ^a	Not identified
>0.5 - 1 km zone				
Highest indoor	7944	8305	7806	8080
Highest outdoor	4380	1666	3325	1750
Highest total	8696	8488	8082	8500

Note

^a These rates are underestimated since the residents approached, who would have higher times in the area, declined to participate in the survey.

Aldermaston

In the 0 – 0.25 km zone in 2002, the highest indoor, outdoor and total occupancy rates were all for residents, and in 2011 the highest indoor rate was for two residents and the highest outdoor and total rates were for a resident who also ran a small business from home. In the >0.25 – 0.5 km zone in 2002, the highest indoor, and total occupancy rates was for a resident and the highest outdoor rate was for two farmers who lived in the area. In 2011, the highest indoor and total occupancy rates were for employees and the highest outdoor occupancy rate was for a farm worker. It would be expected that residents would have higher occupancy times than the employees and farm worker but the residents approached in this zone declined to be interviewed in 2011. In the >0.5 – 1 km zone in 2002, the highest indoor occupancy rate was for a resident and the highest outdoor and total occupancy rates were for a farmer who was also lived in the area. In 2011, the highest indoor and total occupancy rates were for two residents and the highest outdoor occupancy rate was for a farmer who lived in the area.

Burghfield

In the 0 – 0.25 km zone, in 2002 and 2011, no occupied residential properties were identified. In the >0.25 – 0.5 km zone in 2002, the highest indoor, outdoor and total occupancy rates were for residents, however the residential properties in this zone were derelict in 2011. In the >0.5 – 1 km zone in 2002 and 2011, the highest indoor and total occupancy rates were for residents and the highest outdoor occupancy rate was for a farmer who lived in the area.

In the Aldermaston and Burghfield direct radiation survey area, two sets of gamma dose measurements taken in 2011 can be compared with those taken at the same properties in 2002. These data are shown in Table K

Table K. Comparison between 2002 and 2011 gamma dose rates ($\mu\text{Gy h}^{-1}$)

Location	Indoor		Outdoor	
	2002	2011	2002	2011
Residence 1	0.092	0.096	0.073	0.067
Residence 2	0.064	0.070	0.071	0.068

Notes

These measurements have not been adjusted for background dose rates
The locations correspond to those in Table 47

9 MAIN FINDINGS

The survey investigated three potential sources of public radiation exposure from the Aldermaston and Burghfield site, which were:

- Discharges of liquid radioactive waste to a stream and to a sewer
- Discharges of gaseous radioactive waste to the atmosphere
- Emissions of direct radiation

Data were collected for 498 individuals including, for example, a commercial fisherman, game and wildfowl shooters, sewage treatment works employees, houseboat dwellers, anglers, farmers, allotment holders, beekeepers and people spending time within the direct radiation survey area. These people were targeted because their habits and where they live may cause them to be exposed to radioactivity from the site. However, it should be noted that the most exposed people can only be defined with the outcome of a dose assessment.

All consumption rates recorded are only for foods produced, collected or caught from within the aquatic and terrestrial survey areas as defined in Section 2.3.

9.1 Aquatic survey area

No interviewees were consuming foods from the aquatic survey area. However, there were unconfirmed reports that fish from the River Kennet and the Kennet and Avon Canal were being caught and consumed. It is suggested that a consumption rate of coarse fish of 1 kg y^{-1} be considered for assessment purposes.

The mean occupancy rates for adult high-rate groups over the separate bankside substrates were:

- 660 h y^{-1} for grass
- 6 h y^{-1} for mud, sand and stones

The mean rate for the adult high-rate group for handling fishing gear was 80 h y^{-1} . No sediment handling was identified.

For workers at the Silchester Sewage Treatment Works, which receives liquid waste from the Aldermaston site, the occupancy rate in close proximity ($<10 \text{ m}$) to sewage sludge was 960 h y^{-1} .

Occupancy 'in water' was not identified. The highest adult occupancy rate recorded for time spent 'on water' was 5200 h y^{-1} for an individual who was resident for part of the year on a houseboat.

The irrigation of fruit and vegetables using water from the Aldermaston Stream in the aquatic survey area was identified. The consumption or use of freshwater plants was not identified.

9.2 Terrestrial survey areas

The mean consumption rates for the adult high-rate groups for the separate consumption pathways for foods potentially affected by gaseous discharges were:

- 36 kg y⁻¹ for green vegetables
- 44 kg y⁻¹ for other vegetables
- 54 kg y⁻¹ for root vegetables
- 56 kg y⁻¹ for potato
- 26 kg y⁻¹ for domestic fruit
- 590 l y⁻¹ for milk
- 20 kg y⁻¹ for cattle meat
- 44 kg y⁻¹ for pig meat
- 12 kg y⁻¹ for sheep meat
- 4.8 kg y⁻¹ for poultry
- 120 kg y⁻¹ for eggs
- 3.9 kg y⁻¹ for wild/free foods
- 5.4 kg y⁻¹ for rabbits/hares
- 4.0 kg y⁻¹ for honey
- 0.7 kg y⁻¹ for wild fungi
- 24 kg y⁻¹ for venison
- 24 kg y⁻¹ for freshwater fish
- 1.7 kg y⁻¹ for freshwater crustaceans

No consumption of cereals or freshwater plants subject to gaseous discharges was identified from the survey area. The consumption of foodstuffs by children (child and infant age groups) was also recorded.

The consumption of groundwater by humans was identified; borehole water was used as the sole domestic supply at one residential property and one commercial property. Livestock were supplied with borehole water for drinking at one farm and had access to ditch, spring or stream water at other farms within the survey area.

Control measures taken by the Aldermaston and Burghfield site against wildlife in order to limit the possibility that contamination is transferred off-site included periodic culling of rabbits and discouraging pigeons from roosting.

9.3 Direct radiation survey areas

Aldermaston

Within the 0 – 0.25 km zone of the Aldermaston direct radiation survey area, the highest indoor, outdoor and total occupancy rates were for residents. Within the >0.25 – 0.5 km zone the highest indoor and total occupancy rates were for employees and the highest outdoor occupancy rate was for a farm worker. Within the >0.5 – 1.0 km zone the highest indoor and total occupancy rates were for residents and the highest outdoor occupancy rate was for a farmer. The highest indoor, outdoor and total occupancy rates recorded for all zones in Aldermaston were:

0 - 0.25 km zone

- 7300 h y⁻¹ for the indoor occupancy rate
- 2200 h y⁻¹ for the outdoor occupancy rate
- 8100 h y⁻¹ for the total occupancy rate

>0.25 - 0.5 km zone

(Note that the rates in this zone are underestimated since the residents approached, who would have higher times in the area, declined to participate in the survey.)

- 3100 h y⁻¹ for the indoor occupancy rate
- 960 h y⁻¹ for the outdoor occupancy rate
- 3200 h y⁻¹ for the total occupancy rate

>0.5 - 1 km zone

- 7800 h y⁻¹ for the indoor occupancy rate
- 3300 h y⁻¹ for the outdoor occupancy rate
- 8100 h y⁻¹ for the total occupancy rate

Burghfield

Within the 0 – 0.25 km zone and >0.25 – 0.5 km zones of the Burghfield direct radiation survey area no observations were recorded, as there were no occupied residences within these zones. Within the >0.5 – 1.0 km zone, the highest indoor and total occupancy rates were for a resident and the highest outdoor occupancy rate was for a farmer who lived in the area. The highest indoor, outdoor and total occupancy rates recorded for the >0.5 – 1.0 km zone in Burghfield were:

- 8100 h y⁻¹ for the indoor occupancy rate
- 1800 h y⁻¹ for the outdoor occupancy rate
- 8500 h y⁻¹ for the total occupancy rate

10 RECOMMENDATIONS FOR CHANGES TO THE MONITORING PROGRAMMES

The information collected during the 2011 Aldermaston and Burghfield habits survey can be used to make recommendations for changes to the current monitoring programmes.

10.1 Summary of current environmental monitoring programmes

The 2010 monitoring programmes for Aldermaston and Burghfield operated by the Environment agency and the Food Standards Agency, and published in the RIFE report (EA, FSA, NIEA and SEPA, 2011), included the samples and measurements listed below. The location names, foods and substrate classifications are taken directly from that publication. Some of the samples and measurements taken for the monitoring programmes may be from outside the survey areas used for the 2011 Aldermaston and Burghfield habits survey and some were taken as part of a broader River Thames monitoring programme and not specifically as part of the Aldermaston and Burghfield programme.

Aquatic monitoring

Sample	Location
Flounder	Beckton
Signal crayfish	Ufton Bridge - Theale
Sediment	Pangbourne
Sediment	Mapledurham
Sediment	Aldermaston
Sediment	Spring Lane
Sediment	Stream draining south
Sediment	Reading (Kennet)
Gullypot sediment	Falcon Gate
Gullypot sediment	Main Gate
Gullypot sediment	Tadley Entrance
Gullypot sediment	Burghfield Gate
Freshwater	Pangbourne
Freshwater	Mapledurham
Freshwater	Aldermaston
Freshwater	Spring Lane
Freshwater	Reading (Kennet)
Crude liquid effluent	Silchester treatment works
Final Liquid effluent	Silchester treatment works
Sewage sludge	Silchester treatment works

Gamma dose rate measurements

Substrate	Location
Grass and mud	Pangbourne riverbank
Grass	Pangbourne riverbank
Mud	Mapledurham riverbank
Grass and mud	Mapledurham riverbank

Terrestrial monitoring

Milk
Blackberries
Broad beans
Cabbage
Carrots
Honey
Potatoes
Rabbit
Wheat
Grass
Soil

10.2 Recommendations

Recommendations for changes to the current environmental monitoring programmes are made below. They are based on the findings of this survey and also take into account the potential radiological significance of the various pathways that were identified.

It is recommended that the samples and gamma dose rate measurements currently taken, which are not listed below, remain unchanged in the monitoring programmes.

Environment Agency monitoring

The current environmental monitoring programme adequately covers the Aldermaston and Burghfield area and no changes to this are suggested. Although the Pangbourne pipeline closed in 2005, no changes are suggested to the samples and gamma dose rates taken at Pangbourne and Mapledurham since these are part of the broader River Thames monitoring.

Food Standards Agency monitoring

- Within the 'other vegetable' food group, the sample of broad beans currently collected could be replaced with a sample of runner beans, as these made the highest percentage contribution to this food group.
- A one off sample of pig meat or venison could be added since consumption of both these meats has increased since 2002 and no meat samples are currently taken. Alternatively, a sample of pig or venison faeces could be added as a more economic option.
- Chicken egg samples could be added since they were consumed at a high rate and no egg samples are currently taken.

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Table 1. Survey coverage

Group	Criteria	Estimate of complete coverage	Number for whom positive data was obtained	Coverage for positive observations	Notes
SUMMARY OF ALL PATHWAYS					
All potential interviewees in the Aldermaston and Burghfield aquatic, terrestrial and direct radiation survey areas.	Number of people resident in the terrestrial survey area (excluding those resident in the direct radiation survey area) (See (B) TERRESTRIAL PATHWAYS)	67400 ^a	299 ^c	0.4%	The survey targeted individuals who were potentially the most exposed, mostly producers of local foods such as farmers and allotment holders
	Number of people resident in the direct radiation survey area (See (C) DIRECT RADIATION PATHWAYS)	3000 ^b	47 ^c	1.6%	Including farmers living in the direct radiation survey area and one residence with an attached business
	Number of people employed but not resident in the direct radiation survey area (See (C) DIRECT RADIATION PATHWAYS)	U	101 ^c	U	Excluding employees and contractors of AWE plc.
	Number of people visiting the direct radiation survey area (See (C) DIRECT RADIATION PATHWAYS)	U	34 ^c	U	Including a representative amount of pupils attending a local school, anglers and dog walkers
	Number of people effected by liquid discharges (excluding those assigned to other categories above) (See (A) AQUATIC PATHWAYS)	U	17 ^c	U	Including sewage treatment workers, commercial crayfish trappers, anglers and houseboat dwellers
	Total for aquatic, terrestrial and direct radiation survey areas	U	498 ^c	U	
(A) AQUATIC PATHWAYS					
Commercial fishermen	Number of commercial fishermen working in the aquatic survey area	2	2	100%	
Canal, lake and river bank users (including anglers)	Number of people who use the canal, lake and river banks in the aquatic survey area	U	10	U	
Houseboat occupants	Number of people resident on boats in the aquatic survey area	10	2	20%	Interviews were conducted at 1 houseboat out of a total of 5 houseboats identified in the area
Workers at Sewage Treatment Works	Number of people who work in close proximity (<10m) to the sewage sludge at the Silchester Sewage Treatment Works	7	7	100%	Correspondence with a representative from the sewage treatment works provided data for the employees

Table 1. Survey coverage

Group	Criteria	Estimate of complete coverage	Number for whom positive data was obtained	Coverage for positive observations	Notes
(B) TERRESTRIAL PATHWAYS					
Farmers	Number of farmers and their family members consuming food from the terrestrial survey areas	108	104	96%	Interviews were conducted at 26 farms out of a total of 27 farms identified in the survey area producing food for human consumption.
Allotment holders	Number of allotment holders and their family members consuming food from the terrestrial survey areas	1630	160	10%	Interviews were conducted with 27 allotment holders from an estimated total of 275 allotment holders.
Gardeners	Number of gardeners and their family members consuming food from the terrestrial survey areas	U	20	U	
Beekeepers	Number of people consuming honey produced by beekeepers in the terrestrial survey areas	U	31	U	3 beekeepers were interviewed
Game shooters	Number of people consuming wild poultry, rabbits/hares or venison shot from the terrestrial survey areas	U	60	U	
Freshwater fish and crustaceans consumers	Number of people consuming freshwater fish or freshwater crustaceans caught from the waterways within the terrestrial survey areas	U	9	U	
(C) DIRECT RADIATION PATHWAYS					
Residents	Number of residents in the Aldermaston and Burghfield survey areas	3000	47	1.6%	Including farmers living in the direct radiation survey area and one residence with an attached business.
Employees	Number of people employed in the Aldermaston and Burghfield survey areas	U	101	U	Excluding people living in the direct radiation survey area and employees and contractors of AWE plc.
Visitors	Number of visitors to the Aldermaston and Burghfield survey areas	U	34	U	Including a representative amount of pupils attending a local school, anglers and dog walkers

Table 1. Survey coverage

Group	Criteria	Estimate of complete coverage	Number for whom positive data was obtained	Coverage for positive observations	Notes
BREAKDOWN OF AGE GROUPS FOR PEOPLE RESIDENT IN THE 5 KM TERRESTRIAL SURVEY AREAS					
Adult	16-year-old and over	53150 ^a	420	0.8%	
Child	6-year-old to 15-year-old	9250 ^a	57	0.6%	
Infant	0 to 5-year-old	5000 ^a	21	0.4%	

Notes

^a Estimate of the number of people resident in the 5 km terrestrial survey areas based on data from www.statistics.gov.uk.

^b Estimate of the number of people resident in the 1 km direct radiation survey areas based on data from www.statistics.gov.uk.

^c The number of people for whom positive data was obtained for pathways (A) and (B) and (C) will usually not equal the relevant totals in the summary of all pathways. This is because in sections (A), (B) and (C) some individuals may be counted two or more times, for example a farmer who consumes foods produced on their own farm and also honey.

U - Unknown

Table 2. Typical food groups used in habits surveys

Food group	Examples of foods within the group
Green vegetables	Asparagus, broccoli, Brussels sprout, cabbage, calabrese, cauliflower, chard, courgettes, cucumber, gherkin, globe artichoke, herbs, kale, leaf beet, lettuce, marrow, spinach
Other vegetables	Aubergine, broad bean, chilli pepper, French bean, mangetout, pea, kohlrabi, pepper, pumpkin, runner bean, sweetcorn, tomato
Root vegetables	Beetroot, carrot, celeriac, celery, chicory, fennel, garlic, Jerusalem artichoke, leek, onion, parsnip, radish, shallot, spring onion, swede, turnip
Potato	Potato
Domestic fruit	Apple, apricot, blackberry, blackcurrant, boysenberry, cherry, damson, fig, gooseberry, grapes, greengages, huckleberry, loganberry, melon, nectarines, peach, pear, plum, raspberry, redcurrants, rhubarb, rowanberry, strawberry, tayberry, whitecurrant
Milk	Cows' milk, cream, yoghurt, goats' milk
Cattle meat ^a	Beef
Pig meat ^a	Pork
Sheep meat ^a	Lamb, mutton
Poultry ^b	Chicken, duck, goose, grouse, guinea fowl, partridge, pheasant, pigeon, snipe, turkey, woodcock
Eggs	Chicken egg, duck egg, goose egg
Wild/free foods	Blackberry, chestnut, crab apple, damson, dandelion root, elderberry, nettle, raspberry, rowanberry, sloe, strawberry,
Honey	Honey
Wild Fungi	Mushrooms, other edible fungi
Rabbits/Hares	Rabbit, hare
Venison ^a	Venison
Fish (sea)	Bass, brill, cod, common ling, dab, Dover sole, flounder, gurnard, haddock, hake, herring, lemon sole, mackerel, monkfish, mullet, plaice, pollack, witch saithe, salmon, sea trout, squid ^c , cuttlefish ^c , rays, turbot, whitebait, whiting
Fish (freshwater)	Brown trout, rainbow trout, perch, pike, salmon (river), eels
Crustaceans	Brown crab, spider crab, crawfish, lobster, <i>Nephrops</i> , squat lobster, prawn, shrimp
Molluscs	Cockles, limpets, mussels, oysters, scallops, razor clam, whelks, winkles
Wildfowl ^b	Canada goose, greylag goose, mallard, pink-footed goose, pintail, shoveler, teal, wigeon

Notes^a Including offal^b In habits surveys conducted at coastal sites wild ducks and geese are usually classified as wildfowl and treated as an aquatic pathway, and domesticated ducks and geese are classified as poultry and treated as a terrestrial pathway. However, in this survey the wild ducks and geese are classified as poultry and treated as a terrestrial pathway, since the site is well inland and there are no significant areas potentially affected by liquid discharges where the birds might feed or roost.^c Although squid and cuttlefish are molluscs, radiologically they are more akin to fish.

Table 3. Adults' bankside occupancy rates in the Aldermaston aquatic survey area (h y⁻¹)

Observation number	Location	Activity	Grass	Mud, sand and stones
226	Aldermaston Park Lake	Angling	912	-
225	Aldermaston Park Lake	Angling	576	-
374	Kennet and Avon Canal	Angling	504	-
378	Ufton Bridge (River Kennet)	Angling	216	-
379	Ufton Bridge (River Kennet)	Angling	216	-
474	River Kennet and Kennet and Avon Canal	Commercial crayfish trapping	80	-
475	River Kennet and Kennet and Avon Canal	Commercial crayfish trapping	80	-
375	Ufton Bridge (Kennet and Avon Canal)	Angling	-	6

Notes

Emboldened observations are the high-rate individuals

The mean bankside occupancy rate over grass based on 3 high-rate observations is 664 h y⁻¹

The observed 97.5th percentile rate based on 7 observations for grass is 862 h y⁻¹

The mean bankside occupancy rate over mud, sand and stones based on 1 high-rate observation is 6 h y⁻¹

The observed 97.5th percentile rate is not applicable for 1 observation

Table 4. Children's bankside occupancy rates in the Aldermaston aquatic survey area (h y⁻¹)**Child age group (6 - 15 years old)**

Observation number	Age	Location	Activity	Mud, sand and stones
376	13	Ufton Bridge (Kennet and Avon Canal)	Angling	6
377	13	Ufton Bridge (Kennet and Avon Canal)	Angling	6

Notes

Emboldened observations are the high-rate individuals

The mean bankside occupancy rate over mud, sand and stones based on 2 high-rate observations is 6 h y⁻¹

The observed 97.5th percentile rate based on 2 observations for mud, sand and stones is 6 h y⁻¹

Table 5. Gamma dose rate measurements over bankside substrates in the Aldermaston aquatic survey area ($\mu\text{Gy h}^{-1}$)

NGR	Location	Substrate	Gamma dose rate at 1 metre ^a
SU 593 647	Aldermaston Park Lake	Grass	0.055
SU 594 646	Aldermaston Stream	Mud and stones	0.054
SU 609 666	River Kennet (Padworth)	Mud	0.054
SU 616 682	River Kennet (south-west of Ufton Bridge)	Mud	0.045
SU 617 686	River Kennet (Ufton Bridge)	Mud and stones	0.038
SU 619 687	Kennet and Avon Canal (Ufton Bridge)	Mud, sand and stones	0.045
SU 624 607	Silchester Brook	Mud and stones	0.063

Notes

^a These measurements have not been adjusted for natural background dose rates

Table 6. Adults' handling rates of fishing gear in the Aldermaston aquatic survey area (h y^{-1})

Observation number	Location	Activity	Fishing gear
474	River Kennet and Kennet and Avon Canal	Handling crayfish traps	80
475	River Kennet and Kennet and Avon Canal	Handling crayfish traps	80

Notes

Emboldened observations are the high-rate individuals

The mean fishing gear handling rate based on 2 high-rate observations is 80 h y^{-1}

The observed 97.5th percentile rate based on 2 observations for fishing gear is 80 h y^{-1}

Table 7. Adults' occupancy rates in close proximity to sewage sludge (h y⁻¹)

Observation number	Activity	Occupancy in close proximity (<10m) to sewage sludge
492	Maintaining pumps, transferring sludge to tankers, monitoring pipe work and pumps, cleaning filters, inlet pipes and rag traps	960
493	Maintaining pumps, transferring sludge to tankers, monitoring pipe work and pumps, cleaning filters, inlet pipes and rag traps	960
494	Transferring sludge to tankers, monitoring pipe work and pumps, cleaning filters, inlet pipes and rag traps	960
495	Transferring sludge to tankers, monitoring pipe work and pumps, cleaning filters, inlet pipes and rag traps	960
496	Transferring sludge to tankers, monitoring pipe work and pumps, cleaning filters, inlet pipes and rag traps	960
497	Transferring sludge to tankers, monitoring pipe work and pumps, cleaning filters, inlet pipes and rag traps	960
498	Transferring sludge to tankers, monitoring pipe work and pumps, cleaning filters, inlet pipes and rag traps	960

Table 8. Adults' occupancy rates on water in the Aldermaston aquatic survey area (h y⁻¹)

Observation number	Location	Activity	On water
373	Kennet and Avon Canal	Boat dwelling	5214
372	Kennet and Avon Canal	Boat dwelling	2464

Table 9. Adults' consumption rates of green vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Asparagus	Broccoli	Brussel sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Globe artichoke	Herbs	Kale	Lettuce	Marrow	Pak choi	Spinach	Total
365	-	-	3.0	4.3	-	-	-	12.3	-	-	-	-	-	-	-	-	19.6
402	-	-	3.0	8.1	-	-	1.1	2.5	-	2.4	-	-	-	2.4	-	-	19.5
403	-	-	3.0	8.1	-	-	1.1	2.5	-	2.4	-	-	-	2.4	-	-	19.5
404	-	-	3.0	8.1	-	-	1.1	2.5	-	2.4	-	-	-	2.4	-	-	19.5
405	-	-	3.0	8.1	-	-	1.1	2.5	-	2.4	-	-	-	2.4	-	-	19.5
406	-	-	3.0	8.1	-	-	1.1	2.5	-	2.4	-	-	-	2.4	-	-	19.5
407	-	-	3.0	8.1	-	-	1.1	2.5	-	2.4	-	-	-	2.4	-	-	19.5
174	-	2.3	1.4	5.6	-	1.2	-	1.7	-	-	-	3.9	0.9	1.1	-	1.0	19.2
175	-	2.3	1.4	5.6	-	1.2	-	1.7	-	-	-	3.9	0.9	1.1	-	1.0	19.2
177	-	2.3	1.4	5.6	-	1.2	-	1.7	-	-	-	3.9	0.9	1.1	-	1.0	19.2
178	-	2.3	1.4	5.6	-	1.2	-	1.7	-	-	-	3.9	0.9	1.1	-	1.0	19.2
179	-	2.3	1.4	5.6	-	1.2	-	1.7	-	-	-	3.9	0.9	1.1	-	1.0	19.2
180	-	2.3	1.4	5.6	-	1.2	-	1.7	-	-	-	3.9	0.9	1.1	-	1.0	19.2
221	-	4.7	4.3	3.8	-	2.3	-	-	-	-	-	-	2.8	-	-	-	17.9
222	-	4.7	4.3	3.8	-	2.3	-	-	-	-	-	-	2.8	-	-	-	17.9
223	-	4.7	4.3	3.8	-	2.3	-	-	-	-	-	-	2.8	-	-	-	17.9
224	-	4.7	4.3	3.8	-	2.3	-	-	-	-	-	-	2.8	-	-	-	17.9
6	-	-	3.5	8.2	-	-	-	3.3	-	-	-	-	-	-	-	1.7	16.8
7	-	-	3.5	8.2	-	-	-	3.3	-	-	-	-	-	-	-	1.7	16.8
332	-	1.0	1.4	2.6	-	-	0.4	6.8	1.0	-	-	1.4	0.4	-	-	-	15.1
333	-	1.0	1.4	2.6	-	-	0.4	6.8	1.0	-	-	1.4	0.4	-	-	-	15.1
334	-	1.0	1.4	2.6	-	-	0.4	6.8	1.0	-	-	1.4	0.4	-	-	-	15.1
335	-	1.0	1.4	2.6	-	-	0.4	6.8	1.0	-	-	1.4	0.4	-	-	-	15.1
336	-	1.0	1.4	2.6	-	-	0.4	6.8	1.0	-	-	1.4	0.4	-	-	-	15.1
337	-	1.0	1.4	2.6	-	-	0.4	6.8	1.0	-	-	1.4	0.4	-	-	-	15.1
124	-	2.3	1.6	2.9	-	-	-	4.2	-	-	-	3.1	0.7	-	-	-	14.8
125	-	2.3	1.6	2.9	-	-	-	4.2	-	-	-	3.1	0.7	-	-	-	14.8
127	-	2.3	1.6	2.9	-	-	-	4.2	-	-	-	3.1	0.7	-	-	-	14.8
359	-	-	1.6	3.2	-	-	-	7.7	-	-	-	-	1.6	-	-	-	14.1
360	-	-	1.6	3.2	-	-	-	7.7	-	-	-	-	1.6	-	-	-	14.1
326	-	1.2	0.8	1.0	-	-	-	3.7	-	-	-	1.1	2.0	3.6	-	-	13.4
327	-	1.2	0.8	1.0	-	-	-	3.7	-	-	-	1.1	2.0	3.6	-	-	13.4
328	-	1.2	0.8	1.0	-	-	-	3.7	-	-	-	1.1	2.0	3.6	-	-	13.4
329	-	1.2	0.8	1.0	-	-	-	3.7	-	-	-	1.1	2.0	3.6	-	-	13.4

Table 9. Adults' consumption rates of green vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Asparagus	Broccoli	Brussel sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Globe artichoke	Herbs	Kale	Lettuce	Marrow	Pak choi	Spinach	Total
330	-	1.2	0.8	1.0	-	-	-	3.7	-	-	-	1.1	2.0	3.6	-	-	13.4
331	-	1.2	0.8	1.0	-	-	-	3.7	-	-	-	1.1	2.0	3.6	-	-	13.4
21	-	-	2.2	5.5	-	-	-	4.4	-	-	-	-	-	-	-	-	12.1
22	-	-	2.2	5.5	-	-	-	4.4	-	-	-	-	-	-	-	-	12.1
186	-	-	4.6	6.1	-	-	-	-	-	-	-	-	-	-	-	-	10.6
187	-	-	4.6	6.1	-	-	-	-	-	-	-	-	-	-	-	-	10.6
290	-	-	-	4.9	-	3.0	-	-	-	-	0.9	-	1.8	-	-	-	10.6
291	-	-	-	4.9	-	3.0	-	-	-	-	0.9	-	1.8	-	-	-	10.6
70	-	-	-	-	-	-	-	5.7	4.5	-	-	-	-	-	-	-	10.3
71	-	-	-	-	-	-	-	5.7	4.5	-	-	-	-	-	-	-	10.3
308	-	-	-	-	-	-	-	10.1	-	-	-	-	-	-	-	-	10.1
309	-	-	-	-	-	-	-	10.1	-	-	-	-	-	-	-	-	10.1
310	-	-	-	-	-	-	-	10.1	-	-	-	-	-	-	-	-	10.1
311	-	-	-	-	-	-	-	10.1	-	-	-	-	-	-	-	-	10.1
43	-	-	-	2.6	-	-	-	6.9	-	-	-	-	0.6	-	-	-	10.1
44	-	-	-	2.6	-	-	-	6.9	-	-	-	-	0.6	-	-	-	10.1
202	-	1.9	1.1	3.0	-	-	-	3.7	-	-	-	-	-	-	-	-	9.7
203	-	1.9	1.1	3.0	-	-	-	3.7	-	-	-	-	-	-	-	-	9.7
204	-	1.9	1.1	3.0	-	-	-	3.7	-	-	-	-	-	-	-	-	9.7
292	-	-	-	4.9	-	3.0	-	-	-	-	-	-	1.8	-	-	-	9.7
13	-	-	2.6	-	4.2	-	-	2.8	-	-	-	-	-	-	-	-	9.5
14	-	-	2.6	-	4.2	-	-	2.8	-	-	-	-	-	-	-	-	9.5
138	-	-	1.8	2.4	-	-	-	-	5.1	-	-	-	-	-	-	-	9.4
139	-	-	1.8	2.4	-	-	-	-	5.1	-	-	-	-	-	-	-	9.4
230	-	-	-	-	-	-	1.9	-	5.1	-	-	-	1.8	-	-	-	8.8
231	-	-	-	-	-	-	1.9	-	5.1	-	-	-	1.8	-	-	-	8.8
145	-	4.1	-	-	-	-	-	2.0	-	-	-	-	2.0	-	-	-	8.1
126	-	1.2	0.8	1.5	-	-	-	2.1	-	-	-	1.6	0.3	-	-	-	7.4
218	-	-	-	-	-	-	-	5.5	1.0	-	-	-	-	-	-	-	6.5
102	-	-	-	-	-	-	-	-	-	-	-	-	-	6.0	-	-	6.0
194	-	-	-	-	-	-	-	-	4.8	-	-	-	0.9	-	-	-	5.7
195	-	-	-	-	-	-	-	-	4.8	-	-	-	0.9	-	-	-	5.7
196	-	-	-	-	-	-	-	-	4.8	-	-	-	0.9	-	-	-	5.7
197	-	-	-	-	-	-	-	-	4.8	-	-	-	0.9	-	-	-	5.7

Table 9. Adults' consumption rates of green vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Asparagus	Broccoli	Brussel sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Globe artichoke	Herbs	Kale	Lettuce	Marrow	Pak choi	Spinach	Total
36	-	-	-	3.3	-	0.7	-	0.6	-	-	-	-	1.1	-	-	-	5.6
23	-	-	1.0	2.4	-	-	-	2.0	-	-	-	-	-	-	-	-	5.4
58	-	1.8	-	2.9	-	-	-	-	-	-	-	-	-	-	-	-	4.7
59	-	1.8	-	2.9	-	-	-	-	-	-	-	-	-	-	-	-	4.7
361	-	-	-	1.4	-	-	-	3.3	-	-	-	-	-	-	-	-	4.7
362	-	-	-	1.4	-	-	-	3.3	-	-	-	-	-	-	-	-	4.7
320	-	-	4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6
321	-	-	4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6
322	-	-	4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6
323	-	-	4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6
324	-	-	4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6
8	-	-	0.9	2.2	-	-	-	0.9	-	-	-	-	-	-	-	0.5	4.5
9	-	-	0.9	2.2	-	-	-	0.9	-	-	-	-	-	-	-	0.5	4.5
10	-	-	0.9	2.2	-	-	-	0.9	-	-	-	-	-	-	-	0.5	4.5
11	-	-	0.9	2.2	-	-	-	0.9	-	-	-	-	-	-	-	0.5	4.5
41	-	-	-	4.3	-	-	-	-	-	-	-	-	-	-	-	-	4.3
42	-	-	-	4.3	-	-	-	-	-	-	-	-	-	-	-	-	4.3
416	4.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.2
417	4.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.2
418	4.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.2
419	4.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.2
81	1.5	2.0	-	-	-	-	-	-	-	-	-	-	0.6	-	-	-	4.1
82	1.5	2.0	-	-	-	-	-	-	-	-	-	-	0.6	-	-	-	4.1
366	-	-	0.9	-	-	-	-	1.2	0.6	-	-	-	0.8	-	-	-	3.5
367	-	-	0.9	-	-	-	-	1.2	0.6	-	-	-	0.8	-	-	-	3.5
368	-	-	0.9	-	-	-	-	1.2	0.6	-	-	-	0.8	-	-	-	3.5
369	-	-	0.9	-	-	-	-	1.2	0.6	-	-	-	0.8	-	-	-	3.5
370	-	-	0.9	-	-	-	-	1.2	0.6	-	-	-	0.8	-	-	-	3.5
371	-	-	0.9	-	-	-	-	1.2	0.6	-	-	-	0.8	-	-	-	3.5
341	-	-	-	0.9	-	-	-	-	-	-	-	-	0.4	2.0	-	-	3.3
342	-	-	-	0.9	-	-	-	-	-	-	-	-	0.4	2.0	-	-	3.3
343	-	-	-	0.9	-	-	-	-	-	-	-	-	0.4	2.0	-	-	3.3
344	-	-	-	0.9	-	-	-	-	-	-	-	-	0.4	2.0	-	-	3.3
345	-	-	-	0.9	-	-	-	-	-	-	-	-	0.4	2.0	-	-	3.3

Table 9. Adults' consumption rates of green vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Asparagus	Broccoli	Brussel sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Globe artichoke	Herbs	Kale	Lettuce	Marrow	Pak choi	Spinach	Total
18	-	-	0.3	-	0.5	-	-	0.3	-	-	-	-	-	-	-	-	1.1
19	-	-	0.3	-	0.5	-	-	0.3	-	-	-	-	-	-	-	-	1.1
60	-	0.4	-	0.6	-	-	-	-	-	-	-	-	-	-	-	-	1.0
61	-	0.4	-	0.6	-	-	-	-	-	-	-	-	-	-	-	-	1.0
62	-	0.4	-	0.6	-	-	-	-	-	-	-	-	-	-	-	-	1.0
206	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	0.1
207	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	0.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of green vegetables based on the 32 high-rate adult consumers is 35.9 kg y⁻¹

The observed 97.5th percentile rate based on 177 observations is 44.8 kg y⁻¹

Table 10. Adults' consumption rates of other vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
28	-	22.8	-	2.7	-	-	3.7	-	15.0	-	-	24.1	68.2
47	-	20.5	1.7	2.6	-	16.2	1.8	1.2	4.9	0.6	1.7	13.0	64.1
48	-	20.5	1.7	2.6	-	16.2	1.8	1.2	4.9	0.6	1.7	13.0	64.1
318	-	5.2	-	7.2	-	-	-	1.5	27.2	0.6	6.9	12.7	61.2
319	-	5.2	-	7.2	-	-	-	1.5	27.2	0.6	6.9	12.7	61.2
58	-	4.4	-	-	-	7.6	-	-	24.5	-	-	20.7	57.1
59	-	4.4	-	-	-	7.6	-	-	24.5	-	-	20.7	57.1
32	-	21.8	-	2.9	-	3.6	-	-	21.8	0.2	-	4.3	54.6
33	-	21.8	-	2.9	-	3.6	-	-	21.8	0.2	-	4.3	54.6
181	-	-	-	7.3	-	6.8	7.8	-	7.6	1.7	2.8	10.2	44.1
182	-	-	-	7.3	-	6.8	7.8	-	7.6	1.7	2.8	10.2	44.1
172	-	6.8	-	-	-	-	-	1.0	21.8	-	2.3	6.4	38.2
173	-	6.8	-	-	-	-	-	1.0	21.8	-	2.3	6.4	38.2
363	-	-	-	0.7	-	-	-	-	18.1	16.2	2.8	-	37.8
364	-	-	-	0.7	-	-	-	-	18.1	16.2	2.8	-	37.8
365	-	-	-	0.7	-	-	-	-	18.1	16.2	2.8	-	37.8
120	-	10.0	-	-	-	4.0	1.3	-	11.3	-	3.0	7.5	37.0
121	-	10.0	-	-	-	4.0	1.3	-	11.3	-	3.0	7.5	37.0
122	-	10.0	-	-	-	4.0	1.3	-	11.3	-	3.0	7.5	37.0
123	-	10.0	-	-	-	4.0	1.3	-	11.3	-	3.0	7.5	37.0
34	-	9.2	-	7.3	-	-	-	-	-	0.5	9.3	10.3	36.6
35	-	9.2	-	7.3	-	-	-	-	-	0.5	9.3	10.3	36.6
218	-	4.6	-	2.7	-	2.3	1.5	-	6.8	1.4	1.2	10.8	31.1
77	-	-	-	-	-	-	-	-	25.5	-	-	-	25.5
78	-	-	-	-	-	-	-	-	25.5	-	-	-	25.5
79	-	-	-	-	-	-	-	-	25.5	-	-	-	25.5
80	-	-	-	-	-	-	-	-	25.5	-	-	-	25.5
70	-	0.7	-	1.2	1.7	1.7	-	-	4.5	-	5.1	6.8	21.8
71	-	0.7	-	1.2	1.7	1.7	-	-	4.5	-	5.1	6.8	21.8
312	2.7	-	-	0.3	0.4	0.4	1.3	-	-	10.8	-	4.8	20.7

Table 10. Adults' consumption rates of other vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
313	2.7	-	-	0.3	0.4	0.4	1.3	-	-	10.8	-	4.8	20.7
13	-	2.6	-	8.1	-	5.1	-	-	4.6	-	-	-	20.3
14	-	2.6	-	8.1	-	5.1	-	-	4.6	-	-	-	20.3
6	-	-	-	-	-	-	-	-	10.4	-	3.9	4.3	18.6
7	-	-	-	-	-	-	-	-	10.4	-	3.9	4.3	18.6
290	-	3.4	-	-	-	10.8	-	-	4.1	-	-	-	18.3
291	-	3.4	-	-	-	10.8	-	-	4.1	-	-	-	18.3
21	-	-	-	-	-	2.0	-	-	4.3	-	-	11.9	18.2
22	-	-	-	-	-	2.0	-	-	4.3	-	-	11.9	18.2
416	-	4.6	-	-	-	-	-	-	13.6	-	-	-	18.2
417	-	4.6	-	-	-	-	-	-	13.6	-	-	-	18.2
418	-	4.6	-	-	-	-	-	-	13.6	-	-	-	18.2
419	-	4.6	-	-	-	-	-	-	13.6	-	-	-	18.2
167	-	5.8	-	-	-	-	-	-	8.7	0.1	1.8	-	16.5
168	-	5.8	-	-	-	-	-	-	8.7	0.1	1.8	-	16.5
169	-	5.8	-	-	-	-	-	-	8.7	0.1	1.8	-	16.5
170	-	5.8	-	-	-	-	-	-	8.7	0.1	1.8	-	16.5
171	-	5.8	-	-	-	-	-	-	8.7	0.1	1.8	-	16.5
230	-	-	-	-	-	-	-	-	8.2	-	-	7.6	15.8
231	-	-	-	-	-	-	-	-	8.2	-	-	7.6	15.8
41	-	-	-	2.8	-	0.9	-	-	9.5	-	1.9	-	15.2
42	-	-	-	2.8	-	0.9	-	-	9.5	-	1.9	-	15.2
26	-	3.7	-	7.3	0.6	0.6	-	-	-	1.6	0.9	-	14.7
27	-	3.7	-	7.3	0.6	0.6	-	-	-	1.6	0.9	-	14.7
219	-	5.7	-	-	-	-	-	-	8.5	0.3	-	-	14.5
220	-	5.7	-	-	-	-	-	-	8.5	0.3	-	-	14.5
402	-	-	-	-	-	-	-	-	13.6	0.1	-	-	13.7
403	-	-	-	-	-	-	-	-	13.6	0.1	-	-	13.7
404	-	-	-	-	-	-	-	-	13.6	0.1	-	-	13.7
405	-	-	-	-	-	-	-	-	13.6	0.1	-	-	13.7

Table 10. Adults' consumption rates of other vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
406	-	-	-	-	-	-	-	-	13.6	0.1	-	-	13.7
407	-	-	-	-	-	-	-	-	13.6	0.1	-	-	13.7
186	-	-	-	-	-	-	-	-	13.6	-	-	-	13.6
187	-	-	-	-	-	-	-	-	13.6	-	-	-	13.6
174	-	2.1	-	-	-	-	-	0.3	8.4	-	0.7	2.0	13.4
175	-	2.1	-	-	-	-	-	0.3	8.4	-	0.7	2.0	13.4
177	-	2.1	-	-	-	-	-	0.3	8.4	-	0.7	2.0	13.4
178	-	2.1	-	-	-	-	-	0.3	8.4	-	0.7	2.0	13.4
179	-	2.1	-	-	-	-	-	0.3	8.4	-	0.7	2.0	13.4
180	-	2.1	-	-	-	-	-	0.3	8.4	-	0.7	2.0	13.4
29	-	1.8	-	-	-	-	-	-	11.6	-	-	-	13.4
30	-	1.8	-	-	-	-	-	-	11.6	-	-	-	13.4
31	-	1.8	-	-	-	-	-	-	11.6	-	-	-	13.4
194	-	1.4	0.1	1.6	-	-	2.0	-	4.1	-	-	3.8	12.9
195	-	1.4	0.1	1.6	-	-	2.0	-	4.1	-	-	3.8	12.9
196	-	1.4	0.1	1.6	-	-	2.0	-	4.1	-	-	3.8	12.9
197	-	1.4	0.1	1.6	-	-	2.0	-	4.1	-	-	3.8	12.9
60	-	1.0	-	-	-	1.7	-	-	5.4	-	-	4.6	12.7
61	-	1.0	-	-	-	1.7	-	-	5.4	-	-	4.6	12.7
62	-	1.0	-	-	-	1.7	-	-	5.4	-	-	4.6	12.7
298	-	2.7	-	-	-	-	-	-	4.1	-	1.5	-	11.5
299	-	2.7	-	-	-	-	-	-	4.1	-	1.5	-	11.5
300	-	2.7	-	-	-	-	-	-	4.1	-	1.5	-	11.5
301	-	2.7	-	-	-	-	-	-	4.1	-	1.5	-	11.5
124	-	-	0.1	-	-	-	-	1.1	7.8	0.3	2.0	-	11.3
125	-	-	0.1	-	-	-	-	1.1	7.8	0.3	2.0	-	11.3
127	-	-	0.1	-	-	-	-	1.1	7.8	0.3	2.0	-	11.3
81	-	-	-	-	-	0.2	-	-	10.2	-	-	-	10.4
82	-	-	-	-	-	0.2	-	-	10.2	-	-	-	10.4
304	-	2.7	-	-	-	-	-	-	4.1	-	-	3.2	10.0

Table 10. Adults' consumption rates of other vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
305	-	2.7	-	-	-	-	-	-	4.1	-	-	3.2	10.0
66	-	-	-	-	-	-	-	2.0	2.4	-	-	5.4	9.8
67	-	-	-	-	-	-	-	2.0	2.4	-	-	5.4	9.8
202	-	2.3	-	-	-	-	-	-	6.8	-	0.6	-	9.7
203	-	2.3	-	-	-	-	-	-	6.8	-	0.6	-	9.7
204	-	2.3	-	-	-	-	-	-	6.8	-	0.6	-	9.7
308	-	-	-	-	-	-	-	-	6.8	-	-	2.7	9.5
309	-	-	-	-	-	-	-	-	6.8	-	-	2.7	9.5
310	-	-	-	-	-	-	-	-	6.8	-	-	2.7	9.5
311	-	-	-	-	-	-	-	-	6.8	-	-	2.7	9.5
49	-	3.0	0.3	0.4	-	2.4	0.3	0.2	0.7	0.1	0.2	1.9	9.5
50	-	3.0	0.3	0.4	-	2.4	0.3	0.2	0.7	0.1	0.2	1.9	9.5
51	-	3.0	0.3	0.4	-	2.4	0.3	0.2	0.7	0.1	0.2	1.9	9.5
52	-	3.0	0.3	0.4	-	2.4	0.3	0.2	0.7	0.1	0.2	1.9	9.5
54	-	3.0	0.3	0.4	-	2.4	0.3	0.2	0.7	0.1	0.2	1.9	9.5
55	-	3.0	0.3	0.4	-	2.4	0.3	0.2	0.7	0.1	0.2	1.9	9.5
332	-	-	-	0.6	0.3	-	-	0.2	4.7	0.2	-	2.2	8.2
333	-	-	-	0.6	0.3	-	-	0.2	4.7	0.2	-	2.2	8.2
334	-	-	-	0.6	0.3	-	-	0.2	4.7	0.2	-	2.2	8.2
335	-	-	-	0.6	0.3	-	-	0.2	4.7	0.2	-	2.2	8.2
336	-	-	-	0.6	0.3	-	-	0.2	4.7	0.2	-	2.2	8.2
337	-	-	-	0.6	0.3	-	-	0.2	4.7	0.2	-	2.2	8.2
23	-	-	-	-	-	0.9	-	-	1.9	-	-	5.3	8.1
221	-	2.8	-	-	-	-	-	-	4.3	0.1	-	-	7.2
222	-	2.8	-	-	-	-	-	-	4.3	0.1	-	-	7.2
223	-	2.8	-	-	-	-	-	-	4.3	0.1	-	-	7.2
224	-	2.8	-	-	-	-	-	-	4.3	0.1	-	-	7.2
400	-	-	-	-	-	-	-	-	5.1	-	-	1.8	6.9
401	-	-	-	-	-	-	-	-	5.1	-	-	1.8	6.9
412	-	-	-	-	-	-	1.3	-	-	-	-	4.8	6.1

Table 10. Adults' consumption rates of other vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
413	-	-	-	-	-	-	1.3	-	-	-	-	4.8	6.1
366	-	3.6	-	0.1	-	-	-	-	1.8	0.2	-	-	5.8
367	-	3.6	-	0.1	-	-	-	-	1.8	0.2	-	-	5.8
368	-	3.6	-	0.1	-	-	-	-	1.8	0.2	-	-	5.8
369	-	3.6	-	0.1	-	-	-	-	1.8	0.2	-	-	5.8
370	-	3.6	-	0.1	-	-	-	-	1.8	0.2	-	-	5.8
371	-	3.6	-	0.1	-	-	-	-	1.8	0.2	-	-	5.8
320	-	5.2	-	-	-	-	-	-	-	0.6	-	-	5.8
126	-	-	0.1	-	-	-	-	0.6	3.9	0.1	1.0	-	5.6
138	-	-	-	-	-	-	-	-	-	-	1.8	3.6	5.4
139	-	-	-	-	-	-	-	-	-	-	1.8	3.6	5.4
43	-	-	-	-	-	-	-	-	-	0.5	2.2	2.7	5.4
44	-	-	-	-	-	-	-	-	-	0.5	2.2	2.7	5.4
468	-	-	-	-	-	-	0.6	-	2.0	-	-	2.7	5.3
469	-	-	-	-	-	-	0.6	-	2.0	-	-	2.7	5.3
470	-	-	-	-	-	-	0.6	-	2.0	-	-	2.7	5.3
471	-	-	-	-	-	-	0.6	-	2.0	-	-	2.7	5.3
472	-	-	-	-	-	-	0.6	-	2.0	-	-	2.7	5.3
473	-	-	-	-	-	-	0.6	-	2.0	-	-	2.7	5.3
321	-	5.2	-	-	-	-	-	-	-	-	-	-	5.2
322	-	5.2	-	-	-	-	-	-	-	-	-	-	5.2
323	-	5.2	-	-	-	-	-	-	-	-	-	-	5.2
324	-	5.2	-	-	-	-	-	-	-	-	-	-	5.2
118	-	-	-	-	-	0.5	-	-	4.5	-	-	-	5.0
119	-	-	-	-	-	0.5	-	-	4.5	-	-	-	5.0
8	-	-	-	-	-	-	-	-	2.8	-	1.0	1.2	5.0
9	-	-	-	-	-	-	-	-	2.8	-	1.0	1.2	5.0
10	-	-	-	-	-	-	-	-	2.8	-	1.0	1.2	5.0
11	-	-	-	-	-	-	-	-	2.8	-	1.0	1.2	5.0
36	-	1.2	-	1.0	-	-	-	-	-	0.1	1.2	1.3	4.8

Table 10. Adults' consumption rates of other vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
198	-	0.5	0.05	0.5	-	-	0.7	-	1.4	-	-	1.3	4.3
199	-	0.5	0.05	0.5	-	-	0.7	-	1.4	-	-	1.3	4.3
292	-	-	-	-	-	-	-	-	4.1	-	-	-	4.1
293	-	-	-	-	-	-	-	-	4.1	-	-	-	4.1
294	-	-	-	-	-	-	-	-	4.1	-	-	-	4.1
295	-	-	-	-	-	-	-	-	4.1	-	-	-	4.1
296	-	-	-	-	-	-	-	-	4.1	-	-	-	4.1
297	-	-	-	-	-	-	-	-	4.1	-	-	-	4.1
359	-	-	-	3.8	-	-	-	-	-	-	-	-	3.8
360	-	-	-	3.8	-	-	-	-	-	-	-	-	3.8
211	-	-	-	-	-	-	-	-	1.5	-	-	1.5	3.0
212	-	-	-	-	-	-	-	-	1.5	-	-	1.5	3.0
326	-	-	-	-	-	-	-	1.0	-	-	-	1.8	2.8
327	-	-	-	-	-	-	-	1.0	-	-	-	1.8	2.8
328	-	-	-	-	-	-	-	1.0	-	-	-	1.8	2.8
329	-	-	-	-	-	-	-	1.0	-	-	-	1.8	2.8
330	-	-	-	-	-	-	-	1.0	-	-	-	1.8	2.8
331	-	-	-	-	-	-	-	1.0	-	-	-	1.8	2.8
15	-	0.3	-	1.4	-	0.6	-	-	0.5	-	-	-	2.7
16	-	0.3	-	1.4	-	0.6	-	-	0.5	-	-	-	2.7
17	-	0.3	-	1.4	-	0.6	-	-	0.5	-	-	-	2.7
18	-	0.3	-	1.4	-	0.6	-	-	0.5	-	-	-	2.7
19	-	0.3	-	1.4	-	0.6	-	-	0.5	-	-	-	2.7
380	-	-	-	-	-	-	-	-	2.4	-	-	-	2.4
381	-	-	-	-	-	-	-	-	2.4	-	-	-	2.4
382	-	-	-	-	-	-	-	-	2.4	-	-	-	2.4
383	-	-	-	-	-	-	-	-	2.4	-	-	-	2.4
384	-	-	-	-	-	-	-	-	2.4	-	-	-	2.4
385	-	-	-	-	-	-	-	-	2.4	-	-	-	2.4
386	-	-	-	-	-	-	-	-	2.4	-	-	-	2.4

Table 10. Adults' consumption rates of other vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
387	-	-	-	-	-	-	-	-	2.4	-	-	-	2.4
388	-	-	-	-	-	-	-	-	2.4	-	-	-	2.4
389	-	-	-	-	-	-	-	-	2.4	-	-	-	2.4
206	-	-	-	1.6	-	-	-	-	-	-	0.7	-	2.3
207	-	-	-	1.6	-	-	-	-	-	-	0.7	-	2.3
102	-	-	-	-	-	-	-	-	2.3	-	-	-	2.3
408	-	-	-	-	-	-	-	-	1.1	-	-	0.7	1.8
409	-	-	-	-	-	-	-	-	1.1	-	-	0.7	1.8
361	-	-	-	1.6	-	-	-	-	-	-	-	-	1.6
362	-	-	-	1.6	-	-	-	-	-	-	-	-	1.6
390	-	-	-	-	-	-	-	-	-	-	-	0.9	0.9
391	-	-	-	-	-	-	-	-	-	-	-	0.9	0.9
394	-	-	-	-	-	-	-	-	-	-	-	0.9	0.9
395	-	-	-	-	-	-	-	-	-	-	-	0.9	0.9
145	-	-	-	-	-	0.2	-	-	-	-	-	-	0.2

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of other vegetables based on the 27 high-rate adult consumers is 43.5 kg y⁻¹

The observed 97.5th percentile rate based on 195 observations is 57.7 kg y⁻¹

Table 11. Adults' consumption rates of root vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Jerusalem artichoke	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Sweet potato	Turnip	Total
181	-	18.9	7.7	6.5	2.0	-	3.8	13.5	25.9	9.0	2.9	10.2	-	-	4.0	-	104.4
182	-	18.9	7.7	6.5	2.0	-	3.8	13.5	25.9	9.0	2.9	10.2	-	-	4.0	-	104.4
124	9.4	10.3	3.7	6.2	-	1.5	-	2.6	4.1	4.1	-	-	-	7.8	-	-	49.6
125	9.4	10.3	3.7	6.2	-	1.5	-	2.6	4.1	4.1	-	-	-	7.8	-	-	49.6
127	9.4	10.3	3.7	6.2	-	1.5	-	2.6	4.1	4.1	-	-	-	7.8	-	-	49.6
172	12.3	9.0	0.4	1.4	-	0.3	1.8	4.5	10.8	5.4	-	3.2	-	-	-	-	49.1
173	12.3	9.0	0.4	1.4	-	0.3	1.8	4.5	10.8	5.4	-	3.2	-	-	-	-	49.1
219	10.3	11.3	-	-	-	-	-	1.8	13.8	2.3	-	3.8	-	-	-	-	43.1
220	10.3	11.3	-	-	-	-	-	1.8	13.8	2.3	-	3.8	-	-	-	-	43.1
167	-	5.8	5.1	-	-	-	-	11.5	-	6.9	-	3.1	1.3	8.7	-	-	42.4
168	-	5.8	5.1	-	-	-	-	11.5	-	6.9	-	3.1	1.3	8.7	-	-	42.4
169	-	5.8	5.1	-	-	-	-	11.5	-	6.9	-	3.1	1.3	8.7	-	-	42.4
170	-	5.8	5.1	-	-	-	-	11.5	-	6.9	-	3.1	1.3	8.7	-	-	42.4
171	-	5.8	5.1	-	-	-	-	11.5	-	6.9	-	3.1	1.3	8.7	-	-	42.4
43	7.7	-	-	-	-	-	-	8.4	-	-	-	-	-	12.8	-	-	28.8
44	7.7	-	-	-	-	-	-	8.4	-	-	-	-	-	12.8	-	-	28.8
290	10.8	5.4	-	-	-	-	-	-	4.3	4.3	-	3.8	-	-	-	-	28.7
291	10.8	5.4	-	-	-	-	-	-	4.3	4.3	-	3.8	-	-	-	-	28.7
32	7.2	7.2	-	-	-	-	-	7.2	3.6	2.9	-	-	-	-	-	-	28.1
33	7.2	7.2	-	-	-	-	-	7.2	3.6	2.9	-	-	-	-	-	-	28.1
120	6.3	10.0	-	-	-	-	-	-	10.0	-	-	-	-	-	-	-	26.3
121	6.3	10.0	-	-	-	-	-	-	10.0	-	-	-	-	-	-	-	26.3
122	6.3	10.0	-	-	-	-	-	-	10.0	-	-	-	-	-	-	-	26.3
123	6.3	10.0	-	-	-	-	-	-	10.0	-	-	-	-	-	-	-	26.3
47	4.1	4.1	0.7	-	-	1.2	-	3.8	4.9	-	1.6	-	-	-	-	4.9	25.2
48	4.1	4.1	0.7	-	-	1.2	-	3.8	4.9	-	1.6	-	-	-	-	4.9	25.2
126	4.7	5.1	1.8	3.1	-	0.8	-	1.3	2.1	2.1	-	-	-	3.9	-	-	24.8
339	3.6	0.9	-	-	-	-	-	3.6	6.4	3.4	-	-	0.8	4.5	-	-	23.2
340	3.6	0.9	-	-	-	-	-	3.6	6.4	3.4	-	-	0.8	4.5	-	-	23.2

Table 11. Adults' consumption rates of root vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Jerusalem artichoke	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Sweet potato	Turnip	Total
13	2.5	5.1	-	-	-	-	-	5.1	8.1	2.0	-	-	-	-	-	-	22.8
14	2.5	5.1	-	-	-	-	-	5.1	8.1	2.0	-	-	-	-	-	-	22.8
221	5.1	5.6	-	-	-	-	-	0.9	6.9	1.1	-	1.9	-	-	-	-	21.5
222	5.1	5.6	-	-	-	-	-	0.9	6.9	1.1	-	1.9	-	-	-	-	21.5
223	5.1	5.6	-	-	-	-	-	0.9	6.9	1.1	-	1.9	-	-	-	-	21.5
224	5.1	5.6	-	-	-	-	-	0.9	6.9	1.1	-	1.9	-	-	-	-	21.5
298	3.4	2.3	-	-	-	-	-	-	4.1	2.7	2.7	2.4	3.0	-	-	-	20.5
299	3.4	2.3	-	-	-	-	-	-	4.1	2.7	2.7	2.4	3.0	-	-	-	20.5
28	8.4	-	-	-	-	-	-	8.4	3.4	-	-	-	-	-	-	-	20.3
312	2.4	2.4	-	1.4	-	0.4	-	-	5.8	1.0	-	-	-	2.4	-	4.3	20.1
313	2.4	2.4	-	1.4	-	0.4	-	-	5.8	1.0	-	-	-	2.4	-	4.3	20.1
402	3.0	1.5	-	-	-	0.9	-	1.5	4.8	2.4	-	-	-	4.5	-	-	18.6
403	3.0	1.5	-	-	-	0.9	-	1.5	4.8	2.4	-	-	-	4.5	-	-	18.6
404	3.0	1.5	-	-	-	0.9	-	1.5	4.8	2.4	-	-	-	4.5	-	-	18.6
405	3.0	1.5	-	-	-	0.9	-	1.5	4.8	2.4	-	-	-	4.5	-	-	18.6
406	3.0	1.5	-	-	-	0.9	-	1.5	4.8	2.4	-	-	-	4.5	-	-	18.6
407	3.0	1.5	-	-	-	0.9	-	1.5	4.8	2.4	-	-	-	4.5	-	-	18.6
186	8.2	4.5	-	-	-	-	-	-	3.6	-	-	-	-	-	-	-	16.3
187	8.2	4.5	-	-	-	-	-	-	3.6	-	-	-	-	-	-	-	16.3
21	7.7	1.6	-	-	-	-	-	0.8	4.3	1.3	-	-	-	-	-	-	15.7
22	7.7	1.6	-	-	-	-	-	0.8	4.3	1.3	-	-	-	-	-	-	15.7
174	3.8	2.8	0.1	0.4	-	0.1	0.6	1.4	3.3	1.7	-	1.0	-	-	-	-	15.1
175	3.8	2.8	0.1	0.4	-	0.1	0.6	1.4	3.3	1.7	-	1.0	-	-	-	-	15.1
177	3.8	2.8	0.1	0.4	-	0.1	0.6	1.4	3.3	1.7	-	1.0	-	-	-	-	15.1
178	3.8	2.8	0.1	0.4	-	0.1	0.6	1.4	3.3	1.7	-	1.0	-	-	-	-	15.1
179	3.8	2.8	0.1	0.4	-	0.1	0.6	1.4	3.3	1.7	-	1.0	-	-	-	-	15.1
180	3.8	2.8	0.1	0.4	-	0.1	0.6	1.4	3.3	1.7	-	1.0	-	-	-	-	15.1
300	3.4	2.3	-	-	-	-	-	-	4.1	-	-	2.4	3.0	-	-	-	15.1
301	3.4	2.3	-	-	-	-	-	-	4.1	-	-	2.4	3.0	-	-	-	15.1

Table 11. Adults' consumption rates of root vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Jerusalem artichoke	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Sweet potato	Turnip	Total
58	-	6.5	-	-	-	-	-	-	5.2	1.7	-	1.5	-	-	-	-	14.9
59	-	6.5	-	-	-	-	-	-	5.2	1.7	-	1.5	-	-	-	-	14.9
202	4.1	4.5	-	-	-	-	-	2.3	3.6	-	-	-	-	-	-	-	14.5
203	4.1	4.5	-	-	-	-	-	2.3	3.6	-	-	-	-	-	-	-	14.5
204	9.4	4.5	-	-	-	-	-	2.3	3.6	-	-	-	-	-	-	-	14.5
41	4.7	-	-	-	-	-	-	0.8	-	1.9	-	3.4	-	2.4	-	-	13.1
42	4.7	-	-	-	-	-	-	0.8	-	1.9	-	3.4	-	2.4	-	-	13.1
359	3.4	3.4	-	-	-	-	-	0.6	5.4	-	-	-	-	-	-	-	12.8
360	3.4	3.4	-	-	-	-	-	0.6	5.4	-	-	-	-	-	-	-	12.8
138	-	5.4	-	-	-	1.6	-	-	5.8	-	-	-	-	-	-	-	12.7
139	-	5.4	-	-	-	1.6	-	-	5.8	-	-	-	-	-	-	-	12.7
194	2.5	1.4	-	-	-	0.4	-	1.4	4.3	1.1	1.6	-	-	-	-	-	12.6
195	2.5	1.4	-	-	-	0.4	-	1.4	4.3	1.1	1.6	-	-	-	-	-	12.6
196	2.5	1.4	-	-	-	0.4	-	1.4	4.3	1.1	1.6	-	-	-	-	-	12.6
197	2.5	1.4	-	-	-	0.4	-	1.4	4.3	1.1	1.6	-	-	-	-	-	12.6
26	-	-	-	-	-	1.0	-	7.3	2.4	-	0.4	1.0	-	-	-	-	12.2
27	-	-	-	-	-	1.0	-	7.3	2.4	-	0.4	1.0	-	-	-	-	12.2
34	12.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.2
35	12.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.2
29	4.3	-	-	-	-	-	-	5.3	1.0	-	-	-	1.3	-	-	-	11.9
30	4.3	-	-	-	-	-	-	5.3	1.0	-	-	-	1.3	-	-	-	11.9
31	4.3	-	-	-	-	-	-	5.3	1.0	-	-	-	1.3	-	-	-	11.9
304	3.4	-	-	-	-	-	-	-	4.1	-	-	2.4	-	-	-	-	9.8
305	3.4	-	-	-	-	-	-	-	4.1	-	-	2.4	-	-	-	-	9.8
230	4.9	2.7	-	-	-	-	-	-	-	2.2	-	-	-	-	-	-	9.8
231	4.9	2.7	-	-	-	-	-	-	-	2.2	-	-	-	-	-	-	9.8
332	1.1	1.1	0.2	-	-	-	-	-	2.2	1.3	-	-	-	2.8	-	0.8	9.6
333	1.1	1.1	0.2	-	-	-	-	-	2.2	1.3	-	-	-	2.8	-	0.8	9.6
334	1.1	1.1	0.2	-	-	-	-	-	2.2	1.3	-	-	-	2.8	-	0.8	9.6

Table 11. Adults' consumption rates of root vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Jerusalem artichoke	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Sweet potato	Turnip	Total
211	1.0	-	-	-	-	-	-	1.0	2.0	1.0	-	-	-	-	-	-	5.0
212	1.0	-	-	-	-	-	-	1.0	2.0	1.0	-	-	-	-	-	-	5.0
66	0.5	0.3	-	-	-	0.5	-	-	2.9	0.6	-	-	-	-	-	-	4.9
67	0.5	0.3	-	-	-	0.5	-	-	2.9	0.6	-	-	-	-	-	-	4.9
198	0.8	0.5	-	-	-	0.2	-	0.5	1.4	0.4	0.5	-	-	-	-	-	4.3
199	0.8	0.5	-	-	-	0.2	-	0.5	1.4	0.4	0.5	-	-	-	-	-	4.3
320	-	-	-	-	-	-	-	3.9	-	-	-	-	-	-	-	-	3.9
321	-	-	-	-	-	-	-	3.9	-	-	-	-	-	-	-	-	3.9
322	-	-	-	-	-	-	-	3.9	-	-	-	-	-	-	-	-	3.9
323	-	-	-	-	-	-	-	3.9	-	-	-	-	-	-	-	-	3.9
324	-	-	-	-	-	-	-	3.9	-	-	-	-	-	-	-	-	3.9
49	0.6	0.6	0.1	-	-	0.2	-	0.6	0.7	-	0.2	-	-	-	-	0.7	3.7
50	0.6	0.6	0.1	-	-	0.2	-	0.6	0.7	-	0.2	-	-	-	-	0.7	3.7
51	0.6	0.6	0.1	-	-	0.2	-	0.6	0.7	-	0.2	-	-	-	-	0.7	3.7
52	0.6	0.6	0.1	-	-	0.2	-	0.6	0.7	-	0.2	-	-	-	-	0.7	3.7
54	0.6	0.6	0.1	-	-	0.2	-	0.6	0.7	-	0.2	-	-	-	-	0.7	3.7
55	0.6	0.6	0.1	-	-	0.2	-	0.6	0.7	-	0.2	-	-	-	-	0.7	3.7
380	1.4	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.6
381	1.4	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.6
382	1.4	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.6
383	1.4	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.6
384	1.4	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.6
385	1.4	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.6
386	1.4	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.6
387	1.4	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.6
388	1.4	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.6
389	1.4	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.6
60	-	1.4	-	-	-	-	-	-	1.2	0.4	-	0.3	-	-	-	-	3.3
61	-	1.4	-	-	-	-	-	-	1.2	0.4	-	0.3	-	-	-	-	3.3

Table 11. Adults' consumption rates of root vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Jerusalem artichoke	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Sweet potato	Turnip	Total
62	-	1.4	-	-	-	-	-	-	1.2	0.4	-	0.3	-	-	-	-	3.3
9	0.6	-	-	-	-	-	-	1.2	0.6	0.5	-	-	-	-	-	0.3	3.2
81	-	2.6	-	-	-	-	-	-	-	-	0.3	-	-	-	-	-	2.8
82	-	2.6	-	-	-	-	-	-	-	-	0.3	-	-	-	-	-	2.8
412	1.3	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.7
413	1.3	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.7
15	0.3	0.6	-	-	-	-	-	0.6	0.9	0.2	-	-	-	-	-	-	2.5
16	0.3	0.6	-	-	-	-	-	0.6	0.9	0.2	-	-	-	-	-	-	2.5
17	0.3	0.6	-	-	-	-	-	0.6	0.9	0.2	-	-	-	-	-	-	2.5
18	0.3	0.6	-	-	-	-	-	0.6	0.9	0.2	-	-	-	-	-	-	2.5
19	0.3	0.6	-	-	-	-	-	0.6	0.9	0.2	-	-	-	-	-	-	2.5
8	0.6	-	-	-	-	-	-	0.5	0.6	0.5	-	-	-	-	-	0.3	2.5
10	0.6	-	-	-	-	-	-	0.5	0.6	0.5	-	-	-	-	-	0.3	2.5
11	0.6	-	-	-	-	-	-	0.5	0.6	0.5	-	-	-	-	-	0.3	2.5
218	-	-	-	-	-	-	-	2.3	-	-	-	-	-	-	-	-	2.3
36	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.6
206	-	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.4
207	-	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.4
468	-	-	-	-	-	-	-	-	1.2	-	-	-	-	-	-	-	1.2
469	-	-	-	-	-	-	-	-	1.2	-	-	-	-	-	-	-	1.2
470	-	-	-	-	-	-	-	-	1.2	-	-	-	-	-	-	-	1.2
471	-	-	-	-	-	-	-	-	1.2	-	-	-	-	-	-	-	1.2
472	-	-	-	-	-	-	-	-	1.2	-	-	-	-	-	-	-	1.2
473	-	-	-	-	-	-	-	-	1.2	-	-	-	-	-	-	-	1.2
118	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1
119	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1
341	0.2	-	-	-	-	-	-	-	0.3	0.6	-	-	-	-	-	-	1.1
342	0.2	-	-	-	-	-	-	-	0.3	0.6	-	-	-	-	-	-	1.1
343	0.2	-	-	-	-	-	-	-	0.3	0.6	-	-	-	-	-	-	1.1

Table 11. Adults' consumption rates of root vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Jerusalem artichoke	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Sweet potato	Turnip	Total
344	0.2	-	-	-	-	-	-	-	0.3	0.6	-	-	-	-	-	-	1.1
345	0.2	-	-	-	-	-	-	-	0.3	0.6	-	-	-	-	-	-	1.1
346	0.2	-	-	-	-	-	-	-	0.3	0.6	-	-	-	-	-	-	1.1
347	0.2	-	-	-	-	-	-	-	0.3	0.6	-	-	-	-	-	-	1.1
348	0.2	-	-	-	-	-	-	-	0.3	0.6	-	-	-	-	-	-	1.1
349	0.2	-	-	-	-	-	-	-	0.3	0.6	-	-	-	-	-	-	1.1
350	0.2	-	-	-	-	-	-	-	0.3	0.6	-	-	-	-	-	-	1.1
351	0.2	-	-	-	-	-	-	-	0.3	0.6	-	-	-	-	-	-	1.1
352	0.2	-	-	-	-	-	-	-	0.3	0.6	-	-	-	-	-	-	1.1
366	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9
367	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9
368	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9
369	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9
370	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9
371	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9
145	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	0.5

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of root vegetables based on the 14 high-rate adult consumers is 53.8 kg y⁻¹

The observed 97.5th percentile rate based on 190 observations is 49.2 kg y⁻¹

Table 12. Adults' consumption rates of potato from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Potato
118	110.0
172	109.2
173	109.2
181	92.8
182	92.8
219	91.0
220	91.0
167	69.9
168	69.9
169	69.9
170	69.9
171	69.9
70	66.7
71	66.7
119	55.0
186	54.6
187	54.6
34	48.9
35	48.9
359	47.8
360	47.8
13	46.1
14	46.1
221	45.5
222	45.5
223	45.5
224	45.5
174	42.0
175	42.0
177	42.0
178	42.0
179	42.0
180	42.0
194	40.6
195	40.6
196	40.6
197	40.6
120	40.0
121	40.0
122	40.0
123	40.0
211	38.1
212	38.1
41	38.1
42	38.1
363	36.4
364	36.4
365	36.4
28	34.1

Table 12. Adults' consumption rates of potato from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Potato
298	31.9
299	31.9
300	31.9
301	31.9
402	30.3
403	30.3
404	30.3
405	30.3
406	30.3
407	30.3
290	29.1
291	29.1
292	29.1
293	29.1
294	29.1
295	29.1
32	29.0
33	29.0
318	26.0
319	26.0
320	26.0
321	26.0
322	26.0
323	26.0
324	26.0
21	25.4
22	25.4
6	24.6
7	24.6
124	20.8
125	20.8
127	20.8
361	20.5
362	20.5
339	18.1
340	18.1
26	16.4
27	16.4
58	16.3
59	16.3
366	14.6
367	14.6
368	14.6
369	14.6
370	14.6
371	14.6
66	14.2
67	14.2
202	13.7

Table 12. Adults' consumption rates of potato from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Potato
203	13.7
204	13.7
198	13.5
199	13.5
326	11.4
327	11.4
328	11.4
329	11.4
330	11.4
331	11.4
206	10.9
207	10.9
126	10.4
23	10.3
416	9.1
417	9.1
418	9.1
419	9.1
43	8.2
44	8.2
230	7.3
231	7.3
81	6.8
82	6.8
8	6.6
9	6.6
10	6.6
11	6.6
36	6.5
332	5.6
333	5.6
334	5.6
335	5.6
336	5.6
337	5.6
15	5.1
16	5.1
17	5.1
18	5.1
19	5.1
308	4.6
309	4.6
310	4.6
311	4.6
380	4.6
381	4.6
382	4.6
383	4.6
384	4.6

Table 12. Adults' consumption rates of potato from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Potato
385	4.6
386	4.6
387	4.6
388	4.6
389	4.6
468	4.5
469	4.5
470	4.5
471	4.5
472	4.5
473	4.5
47	3.9
48	3.9
60	3.6
61	3.6
62	3.6
412	2.7
413	2.7
341	1.3
342	1.3
343	1.3
344	1.3
345	1.3
346	1.3
347	1.3
348	1.3
349	1.3
350	1.3
351	1.3
352	1.3
49	0.6
50	0.6
51	0.6
52	0.6
54	0.6
55	0.6

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of potato based on the 45 high-rate adult consumers is 56.4 kg y⁻¹

The observed 97.5th percentile rate based on 183 observations is 91.8 kg y⁻¹

Table 13. Adults' consumption rates of domestic fruit from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Apple	Blackberry	Blackcurrant	Blueberry	Cherry	Gooseberry	Grape	Loganberry	Melon	Pear	Plum	Raspberry	Redcurrant	Rhubarb	Strawberry	Tayberry	Whitecurrant	Total
218	18.0	-	5.0	-	-	-	-	5.0	-	5.0	-	5.0	5.0	4.6	5.0	-	-	52.6
28	-	-	8.5	-	-	6.1	-	-	-	-	-	12.2	-	6.8	10.2	-	-	43.9
290	-	4.0	1.6	-	-	-	-	-	-	-	-	13.6	1.6	0.8	8.6	4.0	-	34.1
291	-	4.0	1.6	-	-	-	-	-	-	-	-	13.6	1.6	0.8	8.6	4.0	-	34.1
6	-	0.7	5.1	-	-	0.5	-	-	-	-	-	10.2	-	2.7	12.2	-	-	31.4
7	-	0.7	5.1	-	-	0.5	-	-	-	-	-	10.2	-	2.7	12.2	-	-	31.4
120	10.0	-	3.8	-	-	3.8	1.3	-	-	6.3	-	6.3	-	-	-	-	-	31.3
121	10.0	-	3.8	-	-	3.8	1.3	-	-	6.3	-	6.3	-	-	-	-	-	31.3
122	10.0	-	3.8	-	-	3.8	1.3	-	-	6.3	-	6.3	-	-	-	-	-	31.3
123	10.0	-	3.8	-	-	3.8	1.3	-	-	6.3	-	6.3	-	-	-	-	-	31.3
230	18.1	-	-	-	-	-	-	-	-	1.8	4.5	-	-	-	-	-	-	24.5
231	18.1	-	-	-	-	-	-	-	-	1.8	4.5	-	-	-	-	-	-	24.5
58	-	-	10.2	1.6	-	9.8	-	-	1.0	-	-	1.2	-	-	-	-	-	23.9
59	-	-	10.2	1.6	-	9.8	-	-	1.0	-	-	1.2	-	-	-	-	-	23.9
70	8.9	-	-	-	-	-	-	-	-	4.4	4.4	1.1	-	-	3.0	-	-	21.9
71	8.9	-	-	-	-	-	-	-	-	4.4	4.4	1.1	-	-	3.0	-	-	21.9
181	-	-	0.8	0.5	-	1.0	-	-	-	-	-	3.0	0.5	4.6	10.7	-	0.5	21.6
182	-	-	0.8	0.5	-	1.0	-	-	-	-	-	3.0	0.5	4.6	10.7	-	0.5	21.6
363	6.8	-	-	-	-	-	-	-	-	-	1.5	2.3	-	3.1	7.1	-	-	20.8
364	6.8	-	-	-	-	-	-	-	-	-	1.5	2.3	-	3.1	7.1	-	-	20.8
365	6.8	-	-	-	-	-	-	-	-	-	1.5	2.3	-	3.1	7.1	-	-	20.8
32	-	-	6.8	-	-	4.9	-	-	-	-	-	5.4	-	3.6	-	-	-	20.8
33	-	-	6.8	-	-	4.9	-	-	-	-	-	5.4	-	3.6	-	-	-	20.8
34	-	-	12.8	-	-	-	-	-	-	-	-	5.1	-	-	-	-	-	17.9
35	-	-	12.8	-	-	-	-	-	-	-	-	5.1	-	-	-	-	-	17.9
339	4.1	-	-	-	-	-	-	-	-	-	6.8	0.9	-	2.3	3.6	-	-	17.7
340	4.1	-	-	-	-	-	-	-	-	-	6.8	0.9	-	2.3	3.6	-	-	17.7
67	-	2.9	0.3	-	-	-	-	-	-	-	-	4.1	-	2.8	6.9	-	-	17.1
26	10.2	0.4	-	-	-	0.4	-	-	-	-	-	4.1	0.1	-	-	-	-	15.2
27	10.2	0.4	-	-	-	0.4	-	-	-	-	-	4.1	0.1	-	-	-	-	15.2
43	-	0.5	-	0.7	-	4.6	-	-	-	-	-	6.4	-	2.6	-	-	-	14.6

Table 13. Adults' consumption rates of domestic fruit from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Apple	Blackberry	Blackcurrant	Blueberry	Cherry	Gooseberry	Grape	Loganberry	Melon	Pear	Plum	Raspberry	Redcurrant	Rhubarb	Strawberry	Tayberry	Whitecurrant	Total
44	-	0.5	-	0.7	-	4.6	-	-	-	-	-	6.4	-	2.6	-	-	-	14.6
66	-	-	0.3	-	-	-	-	-	-	-	-	4.1	-	2.8	6.9	-	-	14.1
81	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	10.2	-	-	12.5
82	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	10.2	-	-	12.5
118	12.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.0
219	11.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.3
220	11.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.3
13	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	8.5	-	-	11.1
14	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	8.5	-	-	11.1
326	1.1	0.8	0.4	-	-	1.9	-	0.4	-	-	-	1.5	0.4	-	3.0	0.4	0.4	10.2
327	1.1	0.8	0.4	-	-	1.9	-	0.4	-	-	-	1.5	0.4	-	3.0	0.4	0.4	10.2
328	1.1	0.8	0.4	-	-	1.9	-	0.4	-	-	-	1.5	0.4	-	3.0	0.4	0.4	10.2
329	1.1	0.8	0.4	-	-	1.9	-	0.4	-	-	-	1.5	0.4	-	3.0	0.4	0.4	10.2
330	1.1	0.8	0.4	-	-	1.9	-	0.4	-	-	-	1.5	0.4	-	3.0	0.4	0.4	10.2
331	1.1	0.8	0.4	-	-	1.9	-	0.4	-	-	-	1.5	0.4	-	3.0	0.4	0.4	10.2
194	2.5	-	-	-	0.4	3.6	-	-	-	1.8	-	0.4	-	0.9	-	-	-	9.7
195	2.5	-	-	-	0.4	3.6	-	-	-	1.8	-	0.4	-	0.9	-	-	-	9.7
196	2.5	-	-	-	0.4	3.6	-	-	-	1.8	-	0.4	-	0.9	-	-	-	9.7
197	2.5	-	-	-	0.4	3.6	-	-	-	1.8	-	0.4	-	0.9	-	-	-	9.7
77	5.7	-	-	-	-	-	-	-	-	-	4.0	-	-	-	-	-	-	9.6
78	5.7	-	-	-	-	-	-	-	-	-	4.0	-	-	-	-	-	-	9.6
79	5.7	-	-	-	-	-	-	-	-	-	4.0	-	-	-	-	-	-	9.6
80	5.7	-	-	-	-	-	-	-	-	-	4.0	-	-	-	-	-	-	9.6
292	-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	8.6	-	-	9.3
47	1.4	-	-	-	-	-	-	-	-	-	-	4.9	-	0.7	1.6	-	-	8.6
48	1.4	-	-	-	-	-	-	-	-	-	-	4.9	-	0.7	1.6	-	-	8.6
293	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.6	-	-	8.6
8	-	-	1.4	-	-	-	-	-	-	-	-	2.7	-	0.7	3.3	-	-	8.1
9	-	-	1.4	-	-	-	-	-	-	-	-	2.7	-	0.7	3.3	-	-	8.1
10	-	-	1.4	-	-	-	-	-	-	-	-	2.7	-	0.7	3.3	-	-	8.1
11	-	-	1.4	-	-	-	-	-	-	-	-	2.7	-	0.7	3.3	-	-	8.1

Table 13. Adults' consumption rates of domestic fruit from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Apple	Blackberry	Blackcurrant	Blueberry	Cherry	Gooseberry	Grape	Loganberry	Melon	Pear	Plum	Raspberry	Redcurrant	Rhubarb	Strawberry	Tayberry	Whitecurrant	Total
184	3.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.3
185	3.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.3
198	0.8	-	-	-	0.1	1.2	-	-	-	0.6	-	0.1	-	0.3	-	-	-	3.2
199	0.8	-	-	-	0.1	1.2	-	-	-	0.6	-	0.1	-	0.3	-	-	-	3.2
390	0.7	-	-	-	-	-	-	-	-	-	2.4	-	-	-	-	-	-	3.1
391	0.7	-	-	-	-	-	-	-	-	-	2.4	-	-	-	-	-	-	3.1
394	0.7	-	-	-	-	-	-	-	-	-	2.4	-	-	-	-	-	-	3.1
395	0.7	-	-	-	-	-	-	-	-	-	2.4	-	-	-	-	-	-	3.1
113	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0
114	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0
119	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0
145	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0
36	-	-	1.7	-	-	-	-	-	-	-	-	0.7	-	-	-	-	-	2.4
318	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3	-	-	-	2.3
319	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3	-	-	-	2.3
359	0.9	-	-	-	-	-	-	-	-	-	-	-	-	1.4	-	-	-	2.3
360	0.9	-	-	-	-	-	-	-	-	-	-	-	-	1.4	-	-	-	2.3
423	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.4
49	0.2	-	-	-	-	-	-	-	-	-	-	0.7	-	0.1	0.2	-	-	1.3
50	0.2	-	-	-	-	-	-	-	-	-	-	0.7	-	0.1	0.2	-	-	1.3
51	0.2	-	-	-	-	-	-	-	-	-	-	0.7	-	0.1	0.2	-	-	1.3
52	0.2	-	-	-	-	-	-	-	-	-	-	0.7	-	0.1	0.2	-	-	1.3
54	0.2	-	-	-	-	-	-	-	-	-	-	0.7	-	0.1	0.2	-	-	1.3
55	0.2	-	-	-	-	-	-	-	-	-	-	0.7	-	0.1	0.2	-	-	1.3
38	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1
102	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	-	-	-	1.1
408	-	-	-	-	-	-	-	-	-	-	0.7	-	-	-	-	-	-	0.7
409	-	-	-	-	-	-	-	-	-	-	0.7	-	-	-	-	-	-	0.7
124	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	-	-	-	0.7
125	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	-	-	-	0.7
127	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	-	-	-	0.7

Table 13. Adults' consumption rates of domestic fruit from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Apple	Blackberry	Blackcurrant	Blueberry	Cherry	Gooseberry	Grape	Loganberry	Melon	Pear	Plum	Raspberry	Redcurrant	Rhubarb	Strawberry	Tayberry	Whitecurrant	Total
106	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	0.5
107	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	0.5
108	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	0.5
167	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	0.5
168	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	0.5
169	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	0.5
170	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	0.5
171	-	-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	0.5
15	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	0.3
16	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	0.3
17	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	0.3
18	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	0.3
19	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	0.3
126	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	0.3

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of domestic fruit based on the 27 high-rate adult consumers is 26.3 kg y⁻¹

The observed 97.5th percentile rate based on 138 observations is 32.9 kg y⁻¹

Table 14. Adults' consumption rates of milk from the Aldermaston & Burghfield terrestrial survey areas (l y⁻¹)

Observation number	Cows' milk
5	591.0
390	190.4
391	190.4
394	190.4
395	190.4
308	129.6
309	129.6
310	129.6
311	129.6
3	14.8

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of milk based on the only high-rate adult consumer is 591.0 l y⁻¹

The observed 97.5th percentile rate based on 10 observations is 500.9 l y⁻¹

Table 15. Adults' consumption rates of cattle meat from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Beef
206	35.5
207	35.5
416	23.7
417	23.7
418	23.7
419	23.7
83	18.9
84	18.9
88	18.9
89	18.9
90	18.9
91	18.9
92	18.9
93	18.9
94	18.9
95	18.9
188	15.8
189	15.8
190	15.8
191	15.8
192	15.8
193	15.8

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of cattle meat based on the 22 high-rate adult consumers is 20.4 kg y⁻¹

The observed 97.5th percentile rate based on 22 observations is 35.5 kg y⁻¹

Table 16. Adults' consumption rates of pig meat from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Pork
1	75.9
206	28.5
207	28.5
2	12.7
3	12.7
4	12.7
5	12.7

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of pig meat based on the 3 high-rate adult consumers is 44.3 kg y⁻¹

The observed 97.5th percentile rate based on 7 observations is 68.8 kg y⁻¹

Table 17. Adults' consumption rates of sheep meat from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Lamb
206	14.8
207	14.8
416	11.3
417	11.3
418	11.3
419	11.3
480	4.2
481	4.2
482	4.2
483	4.2
484	4.2
485	4.2
486	4.2
487	4.2
188	3.8
189	3.8
190	3.8
191	3.8
192	3.8
193	3.8

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of sheep meat based on the 6 high-rate adult consumers is 12.5 kg y⁻¹

The observed 97.5th percentile rate based on 20 observations is 14.8 kg y⁻¹

Table 18. Adults' consumption rates of poultry from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Canada goose	Chicken	Duck	Mallard	Partridge	Pheasant	Pigeon	Total
468	-	4.5	4.8	-	-	-	-	9.3
218	-	-	-	-	-	9.0	-	9.0
479	-	-	-	-	0.6	5.4	0.7	6.7
45	-	-	-	-	-	1.4	3.5	4.8
46	-	-	-	-	-	1.4	3.5	4.8
469	-	-	4.8	-	-	-	-	4.8
2	-	-	-	-	-	4.5	-	4.5
3	-	-	-	-	-	4.5	-	4.5
4	-	-	-	-	-	4.5	-	4.5
5	-	-	-	-	-	4.5	-	4.5
476	0.7	-	-	0.2	0.1	1.6	1.2	3.7
477	0.7	-	-	0.2	0.1	1.6	1.2	3.7
478	0.7	-	-	0.2	0.1	1.6	1.2	3.7
206	0.4	-	-	0.6	-	2.3	0.3	3.5
207	0.4	-	-	0.6	-	2.3	0.3	3.5
219	-	-	-	-	-	3.4	-	3.4
220	-	-	-	-	-	3.4	-	3.4
98	-	-	-	-	0.2	2.7	-	2.9
99	-	-	-	-	0.2	2.7	-	2.9
188	-	-	1.1	-	-	1.1	-	2.1
189	-	-	1.1	-	-	1.1	-	2.1
190	-	-	1.1	-	-	1.1	-	2.1
191	-	-	1.1	-	-	1.1	-	2.1
192	-	-	1.1	-	-	1.1	-	2.1
193	-	-	1.1	-	-	1.1	-	2.1
480	-	-	-	-	-	1.8	-	1.8
481	-	-	-	-	-	1.8	-	1.8
482	-	-	-	-	-	1.8	-	1.8
120	-	-	-	-	0.2	1.1	0.2	1.5
121	-	-	-	-	0.2	1.1	0.2	1.5
122	-	-	-	-	0.2	1.1	0.2	1.5
123	-	-	-	-	0.2	1.1	0.2	1.5
154	-	-	-	-	-	1.5	-	1.5
155	-	-	-	-	-	1.5	-	1.5
156	-	-	-	-	-	1.5	-	1.5
1	-	-	-	-	-	0.9	-	0.9
183	-	-	-	-	-	0.9	-	0.9
184	-	-	-	-	-	0.9	-	0.9
185	-	-	-	-	-	0.9	-	0.9
186	-	-	-	-	-	0.9	-	0.9
187	-	-	-	-	-	0.9	-	0.9
70	-	-	-	-	-	0.6	-	0.6
71	-	-	-	-	-	0.6	-	0.6
128	-	-	-	-	-	0.5	-	0.5
129	-	-	-	-	-	0.5	-	0.5
96	-	-	-	-	0.2	0.3	-	0.5

Table 18. Adults' consumption rates of poultry from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Canada goose	Chicken	Duck	Mallard	Partridge	Pheasant	Pigeon	Total
97	-	-	-	-	0.2	0.3	-	0.5
390	-	-	-	-	-	0.3	-	0.3
391	-	-	-	-	-	0.3	-	0.3
394	-	-	-	-	-	0.3	-	0.3
395	-	-	-	-	-	0.3	-	0.3

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of poultry based on the 17 high-rate adult consumers is 4.8 kg y⁻¹

The observed 97.5th percentile rate based on 51 observations is 8.4 kg y⁻¹

Table 19. Adults' consumption rates of eggs from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Chicken egg	Duck egg	Total
469	-	164.5	164.5
468	83.0	-	83.0
96	30.3	-	30.3
97	30.3	-	30.3
207	20.8	-	20.8
81	14.8	-	14.8
82	14.8	-	14.8
70	11.5	-	11.5
71	11.5	-	11.5
120	11.4	-	11.4
121	11.4	-	11.4
122	11.4	-	11.4
123	11.4	-	11.4
45	10.4	-	10.4
46	10.4	-	10.4
211	8.9	-	8.9
212	8.9	-	8.9
218	8.9	-	8.9
412	5.9	-	5.9
413	5.9	-	5.9
206	5.2	-	5.2
118	-	1.4	1.4
119	-	1.4	1.4

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of eggs based on the 2 high-rate adult consumers is 123.8 kg y⁻¹

The observed 97.5th percentile rate based on 23 observations is 119.7 kg y⁻¹

Table 20. Adults' consumption rates of wild/free foods from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Blackberry	Chestnut	Crab apple	Damson	Elderberry	Hazel nut	Nettle	Plum	Rosehip	Sloe	Wild garlic	Total
31	0.4	-	-	-	-	-	-	-	-	-	-	0.4
416	0.3	-	-	-	-	-	-	-	-	-	-	0.3
417	0.3	-	-	-	-	-	-	-	-	-	-	0.3
418	0.3	-	-	-	-	-	-	-	-	-	-	0.3
419	0.3	-	-	-	-	-	-	-	-	-	-	0.3
390	0.3	-	-	-	-	-	-	-	-	-	-	0.3
391	0.3	-	-	-	-	-	-	-	-	-	-	0.3
394	0.3	-	-	-	-	-	-	-	-	-	-	0.3
395	0.3	-	-	-	-	-	-	-	-	-	-	0.3
47	0.2	-	-	-	-	-	-	-	-	-	-	0.2
48	0.2	-	-	-	-	-	-	-	-	-	-	0.2
81	0.2	-	-	-	-	-	-	-	-	-	-	0.2
82	0.2	-	-	-	-	-	-	-	-	-	-	0.2
308	0.2	-	-	-	-	-	-	-	-	-	-	0.2
309	0.2	-	-	-	-	-	-	-	-	-	-	0.2
310	0.2	-	-	-	-	-	-	-	-	-	-	0.2
311	0.2	-	-	-	-	-	-	-	-	-	-	0.2
60	-	-	-	0.1	-	-	-	-	-	-	-	0.1
61	-	-	-	0.1	-	-	-	-	-	-	-	0.1
62	-	-	-	0.1	-	-	-	-	-	-	-	0.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of wild/free foods based on the 9 high-rate adult consumers is 3.9 kg y⁻¹

The observed 97.5th percentile rate based on 78 observations is 5.2 kg y⁻¹

Table 21. Adults' consumption rates of rabbits/hares from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Hare	Rabbit	Total
218	-	5.4	5.4
120	0.8	-	0.8
121	0.8	-	0.8
122	0.8	-	0.8
123	0.8	-	0.8
206	-	0.2	0.2
207	-	0.2	0.2

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of rabbits/hares based on the only high-rate adult consumer is 5.4 kg y⁻¹

The observed 97.5th percentile rate based on 7 observations is 4.7 kg y⁻¹

Table 22. Adults' consumption rates of honey from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Honey
45	5.4
46	5.4
213	5.4
118	1.9
119	1.9
211	1.6
214	1.4
215	1.4
83	0.8
84	0.8
96	0.5
97	0.5
416	0.2
417	0.2
418	0.2
419	0.2
488	0.2
489	0.2
128	0.2
129	0.2

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of honey based on the 5 high-rate adult consumers is 4.0 kg y⁻¹

The observed 97.5th percentile rate based on 20 observations is 5.4 kg y⁻¹

Table 23. Adults' consumption rates of wild fungi from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Mushrooms
98	1.3
99	1.3
183	0.7
184	0.7
185	0.7
118	0.5
119	0.5
219	0.5
220	0.5
400	0.2
401	0.2
120	0.1
121	0.1
122	0.1
123	0.1
308	0.1
309	0.1
310	0.1
311	0.1
416	0.1
417	0.1
418	0.1
419	0.1
390	0.1
391	0.1
394	0.1
395	0.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of wild fungi based on the 9 high-rate adult consumers is 0.7 kg y⁻¹

The observed 97.5th percentile rate based on 27 observations is 1.3 kg y⁻¹

Table 24. Adults' consumption rates of venison from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Venison
120	25.0
121	25.0
122	25.0
123	25.0
218	20.0
396	3.0
397	3.0
390	2.6
391	2.6
394	2.6
395	2.6

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of venison based on the 5 high-rate adult consumers is 24.0 kg y⁻¹

The observed 97.5th percentile rate based on 11 observations is 25.0 kg y⁻¹

Table 25. Adults' consumption rates of freshwater fish from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Brown trout	Rainbow trout	Total
100	-	24.0	24.0
101	-	24.0	24.0
120	0.5	-	0.5
121	0.5	-	0.5
122	0.5	-	0.5
123	0.5	-	0.5

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of freshwater fish based on the 2 high-rate adult consumers is 24.0 kg y⁻¹

The observed 97.5th percentile rate based on 6 observations is 24.0 kg y⁻¹

In this case the fish were subject to potential exposure to gaseous discharges but not liquid discharges, as they were taken from waters inside the terrestrial survey area but outside the aquatic survey area.

Table 26. Adults' consumption rates of freshwater crustaceans from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Observation number	Signal crayfish
398	2.0
399	2.0
218	1.0

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of freshwater crustaceans based on the 3 high-rate adult consumers is 1.7 kg y⁻¹

The observed 97.5th percentile rate based on 3 observations is 2.0 kg y⁻¹

In this case the crustaceans were subject to potential exposure to gaseous discharges but not liquid discharges, as they were taken from waters inside the terrestrial survey area but outside the aquatic survey area.

Table 27. Children's and infants' consumption rates of green vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Child age group (6 - 15 years old)

Observation number	Age	Artichoke	Broccoli	Brussel sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgette	Cucumber	Herbs	Kale	Lettuce	Marrow	Spinach	Total
316	6	-	-	3.6	-	-	-	-	8.1	5.7	-	-	0.8	-	-	18.2
317	10	-	-	3.6	-	-	-	-	8.1	5.7	-	-	0.8	-	-	18.2
205	14	-	1.9	1.1	3.0	-	-	-	3.7	-	-	-	-	-	-	9.7
72	12	-	-	-	-	-	-	-	4.3	3.4	-	-	-	-	-	7.7
73	10	-	-	-	-	-	-	-	4.3	3.4	-	-	-	-	-	7.7
68	9	-	-	-	-	-	-	0.7	2.9	-	-	-	0.1	2.1	-	5.7
69	11	-	-	-	-	-	-	0.7	2.9	-	-	-	0.1	2.1	-	5.7
24	14	-	-	1.0	2.4	-	-	-	2.0	-	-	-	-	-	-	5.4
25	15	-	-	1.0	2.4	-	-	-	2.0	-	-	-	-	-	-	5.4
74	8	-	-	-	-	-	-	-	2.9	2.3	-	-	-	-	-	5.1
75	6	-	-	-	-	-	-	-	2.9	2.3	-	-	-	-	-	5.1
12	14	-	-	0.9	2.2	-	-	-	0.9	-	-	-	-	-	0.5	4.5
353	15	-	-	-	0.9	-	-	-	-	-	-	-	0.4	2.0	-	3.3
354	13	-	-	-	0.9	-	-	-	-	-	-	-	0.4	2.0	-	3.3
355	11	-	-	-	0.9	-	-	-	-	-	-	-	0.4	2.0	-	3.3
356	10	-	-	-	0.9	-	-	-	-	-	-	-	0.4	2.0	-	3.3
357	8	-	-	-	0.9	-	-	-	-	-	-	-	0.4	2.0	-	3.3
358	6	-	-	-	0.9	-	-	-	-	-	-	-	0.4	2.0	-	3.3
302	10	-	-	-	-	-	-	-	-	2.1	-	-	-	0.6	-	2.7
303	12	-	-	-	-	-	-	-	-	2.1	-	-	-	0.6	-	2.7
414	7	-	-	-	-	-	-	-	-	-	-	-	1.7	-	-	1.7
63	14	-	0.4	-	0.6	-	-	-	-	-	-	-	-	-	-	1.0
64	11	-	0.4	-	0.6	-	-	-	-	-	-	-	-	-	-	1.0
56	6	0.1	0.1	0.05	0.1	-	-	0.1	0.3	-	-	0.1	0.1	-	0.1	0.9
209	8	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	0.1
208	12	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	0.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of green vegetables for the child age group based upon the 5 high-rate consumers is 12.3 kg y⁻¹

The observed 97.5th percentile rate based on 26 observations is 18.2 kg y⁻¹

Table 27. Children's and infants' consumption rates of green vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Infant age group (0 - 5 years old)

Observation number	Age	Artichoke	Broccoli	Brussel sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgettes	Cucumber	Herbs	Kale	Lettuce	Marrow	Spinach	Total
314	5	-	-	3.6	-	-	-	-	16.2	5.7	-	-	0.8	-	-	26.3
315	5	-	-	3.6	-	-	-	-	16.2	5.7	-	-	0.8	-	-	26.3
338	5	-	1.0	1.4	2.6	-	-	0.4	6.8	1.0	-	1.4	0.4	-	-	15.1
176	3	-	1.2	0.7	2.8	-	0.6	-	0.8	-	-	2.0	0.5	0.6	0.5	9.6
415	2	-	-	-	-	-	-	-	-	-	-	-	1.7	-	-	1.7
200	3	-	-	-	-	-	-	-	-	0.8	-	-	0.2	-	-	0.9
201	2	-	-	-	-	-	-	-	-	0.8	-	-	0.2	-	-	0.9
57	3	0.05	0.1	0.03	0.1	-	-	0.04	0.2	-	-	0.1	0.1	-	0.05	0.6
20	4	-	-	0.1	-	0.2	-	-	0.1	-	-	-	-	-	-	0.5
53	1	0.02	0.02	0.02	0.04	-	-	0.02	0.1	-	-	0.03	0.04	-	0.02	0.3
65	5	-	0.1	-	0.1	-	-	-	-	-	-	-	-	-	-	0.2
210	4	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	0.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of green vegetables for the infant age group based upon the 4 high-rate consumers is 19.3 kg y⁻¹

The observed 97.5th percentile rate based on 12 observations is 26.3 kg y⁻¹

Table 28. Children's and infants' consumption rates of other vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Child age group (6 - 15 years old)

Observation number	Age	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
316	6	2.7	-	-	0.3	0.4	0.4	1.3	-	-	8.6	-	4.8	18.6
317	10	2.7	-	-	0.3	0.4	0.4	1.3	-	-	8.6	-	4.8	18.6
72	12	-	0.5	-	0.9	1.3	1.3	-	-	3.4	-	3.8	5.1	16.3
73	10	-	0.5	-	0.9	1.3	1.3	-	-	3.4	-	3.8	5.1	16.3
63	14	-	1.0	-	-	-	1.7	-	-	5.4	-	-	4.6	12.7
64	11	-	1.0	-	-	-	1.7	-	-	5.4	-	-	4.6	12.7
302	10	-	2.7	-	-	-	-	-	-	4.1	-	1.5	3.2	11.5
303	12	-	2.7	-	-	-	-	-	-	4.1	-	1.5	3.2	11.5
74	8	-	0.4	-	0.6	0.9	0.9	-	-	2.3	-	2.6	3.4	10.9
75	6	-	0.4	-	0.6	0.9	0.9	-	-	2.3	-	2.6	3.4	10.9
205	14	-	2.3	-	-	-	-	-	-	6.8	-	0.6	-	9.7
24	14	-	-	-	-	-	0.9	-	-	1.9	-	-	5.3	8.1
25	15	-	-	-	-	-	0.9	-	-	1.9	-	-	5.3	8.1
306	11	-	2.7	-	-	-	-	-	-	4.1	-	-	-	6.8
307	13	-	2.7	-	-	-	-	-	-	4.1	-	-	-	6.8
414	7	-	-	-	-	-	-	1.3	-	-	-	-	4.8	6.1
12	14	-	-	-	-	-	-	-	-	2.8	-	1.0	1.2	5.0
56	6	-	0.9	0.1	0.12	-	0.7	0.1	0.1	0.2	0.0	0.1	0.6	2.8
208	12	-	-	-	1.6	-	-	-	-	-	-	0.7	-	2.3
209	8	-	-	-	0.8	-	-	-	-	-	-	0.3	-	1.2
392	14	-	-	-	-	-	-	-	-	-	-	-	0.9	0.9
393	9	-	-	-	-	-	-	-	-	-	-	-	0.9	0.9
68	9	-	-	-	-	-	-	-	0.3	0.4	-	-	-	0.8
69	11	-	-	-	-	-	-	-	0.3	0.4	-	-	-	0.8

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of other vegetables for the child age group based upon the 15 high-rate consumers is 12.0 kg y⁻¹

The observed 97.5th percentile rate based on 24 observations is 18.6 kg y⁻¹

Table 28. Children's and infants' consumption rates of other vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Infant age group (0 - 5 years old)

Observation number	Age	Aubergine	Broad bean	Chilli pepper	French bean	Mangetout	Pea	Pepper	Pumpkin	Runner bean	Squash	Sweetcorn	Tomato	Total
314	5	2.7	-	-	0.3	0.4	0.4	1.3	-	-	10.8	-	4.8	20.7
315	5	2.7	-	-	0.3	0.4	0.4	1.3	-	-	10.8	-	4.8	20.7
338	5	-	-	-	0.6	0.3	-	-	0.2	4.7	0.2	-	2.2	8.2
415	2	-	-	-	-	-	-	1.3	-	-	-	-	4.8	6.1
176	3	-	1.1	-	-	-	-	-	0.2	2.1	-	0.4	1.0	4.6
65	5	-	0.2	-	-	-	0.3	-	-	1.1	-	-	0.9	2.5
200	3	-	0.2	-	0.3	-	-	0.3	-	0.7	-	-	0.6	2.1
201	2	-	0.2	-	0.3	-	-	0.3	-	0.7	-	-	0.6	2.1
57	3	-	0.6	0.1	0.08	-	0.5	0.1	0.03	0.1	0.02	0.05	0.4	1.9
20	4	-	0.3	-	0.7	-	0.3	-	-	0.3	-	-	-	1.5
210	4	-	-	-	0.8	-	-	-	-	-	-	0.3	-	1.2
53	1	-	0.3	0.03	0.04	-	0.2	0.03	0.02	0.1	0.01	0.02	0.2	0.9
325	0.3	-	-	-	-	-	-	-	-	-	0.6	-	-	0.6

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of other vegetables for the infant age group based upon the 3 high-rate consumers is 16.6 kg y⁻¹

The observed 97.5th percentile rate based on 13 observations is 20.7 kg y⁻¹

Table 29. Children's and infants' consumption rates of root vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Child age group (6 - 15 years old)

Observation number	Age	Beetroot	Carrot	Celeriac	Celery	Garlic	Jerusalem artichoke	Leek	Onion	Parsnip	Radish	Shallot	Swede	Turnip	Total
316	6	2.4	2.4	-	1.4	0.4	-	-	5.8	1.0	-	-	2.4	4.3	20.1
317	10	2.4	2.4	-	1.4	0.4	-	-	5.8	1.0	-	-	2.4	4.3	20.1
205	14	4.1	4.5	-	-	-	-	2.3	3.6	-	-	-	-	-	14.5
302	10	3.4	2.3	-	-	-	-	-	4.1	-	-	2.4	-	-	12.1
303	12	3.4	2.3	-	-	-	-	-	4.1	-	-	2.4	-	-	12.1
24	14	3.4	0.7	-	-	-	-	0.4	1.9	0.6	-	-	-	-	7.0
25	15	3.4	0.7	-	-	-	-	0.4	1.9	0.6	-	-	-	-	7.0
72	12	1.4	1.1	-	-	-	-	-	3.6	-	-	-	-	-	6.1
73	10	1.4	1.1	-	-	-	-	-	3.6	-	-	-	-	-	6.1
74	8	0.9	0.8	-	-	-	-	-	2.4	-	-	-	-	-	4.1
75	6	0.9	0.8	-	-	-	-	-	2.4	-	-	-	-	-	4.1
63	14	-	1.4	-	-	-	-	-	1.2	0.4	-	0.3	-	-	3.3
64	11	-	1.4	-	-	-	-	-	1.2	0.4	-	0.3	-	-	3.3
414	7	1.3	1.4	-	-	-	-	-	-	-	-	-	-	-	2.7
12	14	0.6	-	-	-	-	-	0.5	0.6	0.5	-	-	-	0.3	2.5
208	12	-	1.4	-	-	-	-	-	-	-	-	-	-	-	1.4
353	15	0.2	-	-	-	-	-	-	0.3	0.6	-	-	-	-	1.1
354	13	0.2	-	-	-	-	-	-	0.3	0.6	-	-	-	-	1.1
355	11	0.2	-	-	-	-	-	-	0.3	0.6	-	-	-	-	1.1
356	10	0.2	-	-	-	-	-	-	0.3	0.6	-	-	-	-	1.1
357	8	0.2	-	-	-	-	-	-	0.3	0.6	-	-	-	-	1.1
358	6	0.2	-	-	-	-	-	-	0.3	0.6	-	-	-	-	1.1
56	6	0.2	0.2	0.03	-	0.1	-	0.2	0.2	-	0.1	-	-	0.2	1.1
68	9	0.1	0.1	-	-	0.1	-	-	0.5	0.1	-	-	-	-	0.9
69	11	0.1	0.1	-	-	0.1	-	-	0.5	0.1	-	-	-	-	0.9
209	8	-	0.7	-	-	-	-	-	-	-	-	-	-	-	0.7

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of root vegetables for the child age group based upon the 7 high-rate consumers is 13.2 kg y⁻¹

The observed 97.5th percentile rate based on 26 observations is 20.1 kg y⁻¹

Table 29. Children's and infants' consumption rates of root vegetables from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Infant age group (0 - 5 years old)

Observation number	Age	Beetroot	Carrot	Celeriac	Celery	Garlic	Jerusalem artichoke	Leek	Onion	Parsnip	Radish	Shallot	Swede	Turnip	Total
314	5	2.4	2.4	-	1.4	0.4	-	-	5.8	1.0	-	-	2.4	4.3	20.1
315	5	2.4	2.4	-	1.4	0.4	-	-	5.8	1.0	-	-	2.4	4.3	20.1
338	5	1.1	1.1	0.2	-	-	-	-	2.2	1.3	-	-	2.8	0.8	9.6
176	3	1.9	1.4	0.1	0.2	-	0.3	0.7	1.7	0.8	-	0.5	-	-	7.5
415	2	1.3	1.4	-	-	-	-	-	-	-	-	-	-	-	2.7
200	3	0.4	0.2	-	-	-	-	0.2	0.7	0.2	0.3	-	-	-	2.0
201	2	0.4	0.2	-	-	-	-	0.2	0.7	0.2	0.3	-	-	-	2.0
20	4	0.1	0.3	-	-	-	-	0.3	0.5	0.1	-	-	-	-	1.3
210	4	-	0.7	-	-	-	-	-	-	-	-	-	-	-	0.7
65	5	-	0.3	-	-	-	-	-	0.2	0.1	-	0.1	-	-	0.7
57	3	-	0.1	0.02	-	0.04	-	0.1	0.1	-	0.05	-	-	0.1	0.6
53	1	0.1	0.1	0.01	-	0.02	-	0.1	0.1	-	0.02	-	-	0.1	0.4

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of root vegetables for the infant age group based upon the 4 high-rate consumers is 14.3 kg y⁻¹

The observed 97.5th percentile rate based on 12 observations is 20.1 kg y⁻¹

Table 30. Children's and infants' consumption rates of potato from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Child age group (6 - 15 years old)

Observation number	Age	Potato
72	12	50.0
73	10	50.0
74	8	33.3
75	6	33.3
302	10	31.9
303	12	31.9
205	14	13.7
208	12	10.9
24	14	10.3
25	15	10.3
12	14	6.6
209	8	5.5
63	14	3.6
64	11	3.6
414	7	2.7
68	9	2.5
69	11	2.5
353	15	1.3
354	13	1.3
355	11	1.3
356	10	1.3
357	8	1.3
358	6	1.3
56	6	0.2

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of potato for the child age group based upon the 6 high-rate consumers is 38.4 kg y⁻¹

The observed 97.5th percentile rate based on 24 observations is 50.0 kg y⁻¹

Table 30. Children's and infants' consumption rates of potato from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Infant age group (0 - 5 years old)

Observation number	Age	Potato
176	3	21.0
200	3	6.8
201	2	6.8
338	5	5.6
210	4	5.5
415	2	2.7
20	4	2.6
65	5	0.7
57	3	0.1
53	1	0.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of potato for the infant age group based upon the only high-rate consumer is 21.0 kg y⁻¹

The observed 97.5th percentile rate based on 10 observations is 17.8 kg y⁻¹

Table 31. Children's and infants' consumption rates of domestic fruit from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Child age group (6 - 15 years old)

Observation number	Age	Apple	Blackcurrant	Blueberry	Cherry	Gooseberry	Melon	Pear	Plum	Raspberry	Rhubarb	Strawberry	Total
72	12	6.7	-	-	-	-	-	3.3	3.3	0.8	-	2.3	16.4
73	10	6.7	-	-	-	-	-	3.3	3.3	0.8	-	2.3	16.4
74	8	4.4	-	-	-	-	-	2.2	2.2	0.5	-	1.5	10.9
75	6	4.4	-	-	-	-	-	2.2	2.2	0.5	-	1.5	10.9
12	14	-	1.4	-	-	-	-	-	-	2.7	0.7	3.3	8.1
316	6	-	-	-	-	0.9	-	-	-	0.9	1.0	2.5	5.4
317	10	-	-	-	-	0.9	-	-	-	0.9	1.0	2.5	5.4
63	14	-	2.3	0.4	-	2.2	0.2	-	-	0.3	-	-	5.3
64	11	-	2.3	0.4	-	2.2	0.2	-	-	0.3	-	-	5.3
208	12	-	-	-	-	-	-	-	-	1.3	1.3	2.5	5.0
392	14	0.7	-	-	-	-	-	-	2.4	-	-	-	3.1
393	9	0.7	-	-	-	-	-	-	2.4	-	-	-	3.1
116	15	3.0	-	-	-	-	-	-	-	-	-	-	3.0
117	11	3.0	-	-	-	-	-	-	-	-	-	-	3.0
68	9	-	0.3	-	-	-	-	-	-	-	-	2.3	2.6
69	11	-	0.3	-	-	-	-	-	-	-	-	2.3	2.6
209	8	-	-	-	-	-	-	-	-	0.6	0.6	1.3	2.5
56	6	0.1	-	-	-	-	-	-	-	0.2	0.03	0.1	0.4

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of domestic fruit for the child age group based upon the 5 high-rate consumers is 12.5 kg y⁻¹

The observed 97.5th percentile rate based on 18 observations is 16.4 kg y⁻¹

Table 31. Children's and infants' consumption rates of domestic fruit from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Infant age group (0 - 5 years old)

Observation number	Age	Apple	Blackcurrant	Blueberry	Cherry	Gooseberry	Melon	Pear	Plum	Raspberry	Rhubarb	Strawberry	Total
314	5	-	-	-	-	0.9	-	-	-	0.9	1.0	2.5	5.4
315	5	-	-	-	-	0.9	-	-	-	0.9	1.0	2.5	5.4
210	4	-	-	-	-	-	-	-	-	0.6	0.6	1.3	2.5
200	3	0.4	-	-	0.1	0.6	-	0.3	-	0.1	-	-	1.5
201	2	0.4	-	-	0.1	0.6	-	0.3	-	0.1	-	-	1.5
65	5	-	0.5	0.1	-	0.4	0.05	-	-	0.1	-	-	1.1
57	3	0.04	-	-	-	-	-	-	-	0.1	0.02	0.05	0.3
53	1	0.02	-	-	-	-	-	-	-	0.1	0.01	0.02	0.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of domestic fruit for the infant age group based upon the 3 high-rate consumers is 4.4 kg y⁻¹

The observed 97.5th percentile rate based on 8 observations is 5.4 kg y⁻¹

Table 32. Children's consumption rates of milk from the Aldermaston & Burghfield terrestrial survey areas ($l\ y^{-1}$)

Child age group (6 - 15 years old)

Observation number	Age	Cows' milk
392	14	190.4
393	9	190.4

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of milk for the child age group based upon the 2 high-rate consumers is $190.4\ l\ y^{-1}$

The observed 97.5th percentile rate based on 2 observations is $190.4\ l\ y^{-1}$

Table 33. Children's and infants' consumption rates of cattle meat from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Child age group (6 - 15 years old)

Observation number	Age	Beef
208	12	28.4
209	8	18.9

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of cattle meat for the child age group based upon the 2 high-rate consumers is 23.7 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 28.1 kg y⁻¹

Infant age group (0 - 5 years old)

Observation number	Age	Beef
210	4	9.5
86	4	1.9
87	2	0.9

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of cattle meat for the infant age group based upon the only high-rate consumer is 9.5 kg y⁻¹

The observed 97.5th percentile rate based on 3 observations is 9.1 kg y⁻¹

Table 34. Children's and infants' consumption rates of pig meat from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Child age group (6 - 15 years old)

Observation number	Age	Pork
208	12	22.8
209	8	15.2

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of pig meat for the child age group based upon the 2 high-rate consumers is 19.0 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 22.6 kg y⁻¹

Infant age group (0 - 5 years old)

Observation number	Age	Pork
210	4	7.6

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of pig meat for the infant age group based upon the only high-rate consumer is 7.6 kg y⁻¹

The observed 97.5th percentile rate is not applicable for 1 observation

Table 35. Children's and infants' consumption rates of sheep meat from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Child age group (6 - 15 years old)

Observation number	Age	Lamb
208	12	11.9
209	8	7.9

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of sheep meat for the child age group based upon the 2 high-rate consumers is 9.9 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 11.8 kg y⁻¹

Infant age group (0 - 5 years old)

Observation number	Age	Lamb
210	4	4.0

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of sheep meat for the infant age group based upon the only high-rate consumer is 4.0 kg y⁻¹

The observed 97.5th percentile rate is not applicable for 1 observation

Table 36. Children's and infants' consumption rates of poultry from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Child age group (6 - 15 years old)

Observation number	Age	Canada goose	Mallard	Pheasant	Pigeon	Total
208	12	0.4	0.6	2.3	0.3	3.5
209	8	0.2	0.3	1.1	0.1	1.7
130	13	-	-	0.5	-	0.5
131	10	-	-	0.5	-	0.5
132	9	-	-	0.5	-	0.5
392	14	-	-	0.3	-	0.3
393	9	-	-	0.3	-	0.3
133	6	-	-	0.2	-	0.2

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of poultry for the child age group based upon the 2 high-rate consumers is 2.6 kg y⁻¹

The observed 97.5th percentile rate based on 8 observations is 3.1 kg y⁻¹

Infant age group (0 - 5 years old)

Observation number	Age	Canada goose	Mallard	Pheasant	Pigeon	Total
210	4	0.2	0.3	1.1	0.1	1.7

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of poultry for the infant age group based upon the only high-rate consumer is 1.7 kg y⁻¹

The observed 97.5th percentile rate is not applicable for 1 observation

Table 37. Children's and infants' consumption rates of eggs from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Child age group (6 - 15 years old)

Observation number	Age	Chicken egg
72	12	8.6
73	10	8.6
414	7	5.9
74	8	5.8
75	6	5.8
208	12	5.2
209	8	5.2

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of eggs for the child age group based upon the 7 high-rate consumers is 6.4 kg y⁻¹

The observed 97.5th percentile rate based on 7 observations is 8.6 kg y⁻¹

Infant age group (0 - 5 years old)

Observation number	Age	Chicken egg
415	2	5.9
210	4	5.2

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of eggs for the infant age group based upon the 2 high-rate consumers is 5.6 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 5.9 kg y⁻¹

Table 38. Children's and infants' consumption rates of wild/free foods from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Child age group (6 - 15 years old)

Observation number	Age	Blackberry	Crab apple	Damson	Total
72	12	1.7	-	-	1.7
73	10	1.7	-	-	1.7
414	7	1.2	-	-	1.2
74	8	1.1	-	-	1.1
75	6	1.1	-	-	1.1
130	13	0.8	-	-	0.8
131	10	0.8	-	-	0.8
132	9	0.8	-	-	0.8
205	14	0.5	-	-	0.5
85	7	0.5	-	-	0.5
133	6	0.4	-	-	0.4
392	14	0.3	-	-	0.3
393	9	0.3	-	-	0.3
63	14	-	-	0.1	0.1
64	11	-	-	0.1	0.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of wild/free foods for the child age group based upon the 8 high-rate consumers is 1.1 kg y⁻¹

The observed 97.5th percentile rate based on 15 observations is 1.7 kg y⁻¹

Table 38. Children's and infants' consumption rates of wild/free foods from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Infant age group (0 - 5 years old)

Observation number	Age	Blackberry	Crab apple	Damson	Total
415	2	1.2	-	-	1.2
86	4	0.3	-	-	0.3
65	5	-	0.2	0.02	0.2
87	2	0.02	-	-	0.02

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of wild/free foods for the infant age group based upon the only high-rate consumer is 1.2 kg y⁻¹

The observed 97.5th percentile rate based on 4 observations is 1.1 kg y⁻¹

Table 39. Children's and infants' consumption rates of rabbit from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Child age group (6 - 15 years old)

Observation number	Age	Rabbit
208	12	0.2
209	8	0.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of rabbits/hares for the child age group based upon the 2 high-rate consumers is 0.2 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 0.2 kg y⁻¹

Infant age group (0 - 5 years old)

Observation number	Age	Rabbit
210	4	0.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of rabbits/hares for the infant age group based upon the only high-rate consumer is 0.1 kg y⁻¹

The observed 97.5th percentile rate is not applicable for 1 observation

Table 40. Children's and infants' consumption rates of honey from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Child age group (6 - 15 years old)

Observation number	Age	Honey
216	8	1.4
217	6	1.4
85	7	0.6
490	10	0.2
491	12	0.2
130	13	0.2
131	10	0.2
132	9	0.2
133	6	0.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of honey for the child age group based upon the 3 high-rate consumers is 1.1 kg y⁻¹

The observed 97.5th percentile rate based on 9 observations is 1.4 kg y⁻¹

Infant age group (0 - 5 years old)

Observation number	Age	Honey
86	4	0.1
87	2	0.04

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of honey for the infant age group based upon the 2 high-rate consumers is 0.1 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 0.1 kg y⁻¹

Table 41. Children's consumption rates of wild fungi from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Child age group (6 - 15 years old)

Observation number	Age	Mushrooms
392	14	0.1
393	9	0.1

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of wild fungi for the child age group based upon the 2 high-rate consumers is 0.1 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 0.1 kg y⁻¹

Table 42. Children's consumption rates of venison from the Aldermaston & Burghfield terrestrial survey areas (kg y⁻¹)

Child age group (0 - 5 years old)

Observation number	Age	Venison
392	14	2.6
393	9	2.6

Notes

Emboldened observations are the high-rate consumers

The mean consumption rate of venison for the child age group based upon the 2 high-rate consumers is 2.6 kg y⁻¹

The observed 97.5th percentile rate based on 2 observations is 2.6 kg y⁻¹

Table 43. Percentage contribution each food type makes to its terrestrial food group for adults

<p>Green vegetables</p> <p><i>Cabbage</i> 23.9 % Courgette 22.3 % Brussel sprout 12.6 % Lettuce 7.2 % Broccoli 6.2 % Marrow 6.0 % Kale 5.8 % Cucumber 4.2 % Cauliflower 4.0 % Calabrese 2.4 % Spinach 1.4 % Asparagus 1.3 % Artichoke 1.2 % Chard 1.1 % Pak choi 0.3 % Herbs 0.1 %</p>	<p>Potato</p> <p><i>Potato</i> 100.0 %</p>	<p>Eggs</p> <p>Chicken egg 66.2 % Duck egg 33.8 %</p>
	<p>Domestic fruit</p> <p>Apple 23.7 % Strawberry 18.1 % Raspberry 16.8 % Rhubarb 9.4 % Blackcurrant 9.0 % Gooseberry 8.5 % Plum 4.9 % Pear 4.1 % Blackberry 1.4 % Redcurrant 1.2 % Tayberry 0.8 % Loganberry 0.5 % Blueberry 0.5 % Grape 0.4 % Whitecurrant 0.2 % Melon 0.2 % Cherry 0.1 %</p>	<p>Wild/free foods</p> <p><i>Blackberry</i> 77.9 % Sloe 10.1 % Damson 3.6 % Crab apple 2.9 % Plum 2.2 % Rosehip 1.1 % Hazel nut 0.5 % Elderberry 0.5 % Chestnut 0.5 % Wild garlic 0.5 % Nettle 0.2 %</p>
<p>Other vegetables</p> <p>Runner bean 43.8 % Tomato 17.7 % <i>Broad bean</i> 15.6 % Pea 5.8 % French bean 5.2 % Sweetcorn 5.1 % Squash 3.4 % Pepper 1.8 % Pumpkin 0.9 % Mangetout 0.3 % Chilli pepper 0.2 % Aubergine 0.2 %</p>		<p>Honey</p> <p><i>Honey</i> 100.0 %</p>
	<p>Milk</p> <p><i>Cows' milk</i> 100.0 %</p>	<p>Wild fungi</p> <p>Mushroom 100.0 %</p>
	<p>Cattle meat</p> <p>Beef 100.0 %</p>	<p>Rabbits/hares</p> <p><i>Rabbit</i> 64.6 % Hare 35.4 %</p>
<p>Root vegetables</p> <p>Onion 20.3 % <i>Carrot</i> 18.9 % Beetroot 18.6 % Leek 13.1 % Parsnip 8.4 % Swede 6.5 % Shallot 4.0 % Celeriac 2.4 % Celery 1.8 % Turnip 1.3 % Radish 1.2 % Spring onion 1.2 % Garlic 1.0 % Sweet potato 0.6 % Artichoke 0.6 % Fennel 0.2 %</p>	<p>Pig meat</p> <p>Pork 100.0 %</p>	<p>Venison</p> <p>Venison 100.0 %</p>
	<p>Sheep meat</p> <p>Lamb 100.0 %</p>	<p>Freshwater fish</p> <p>Rainbow trout 96.2 % Brown trout 3.8 %</p>
	<p>Poultry</p> <p>Pheasant 68.6 % Duck 12.6 % Pigeon 10.1 % Chicken 3.6 % Canada goose 2.2 % Partridge 1.7 % Mallard 1.2 %</p>	<p>Freshwater crustaceans</p> <p>Signal crayfish 100.0 %</p>

Notes

Food types in emboldened italics were monitored by FSA in 2010 (EA, FSA, NIEA and SEPA, 2011)

Wheat was also monitored

Percentages are based on the consumption of all adults in the survey consuming that particular food group

Table 44. Occupancy rates for adults, children and infants in the Aldermaston direct radiation survey area ($h\ y^{-1}$)

Observation Number	Sex	Age (years)	Activity	Indoor occupancy	Outdoor occupancy	Total occupancy
0 to 0.25 km zone						
468	F	46	Residing and working	5946	2190	8136
146	F	26	Residing	7338	365	7703
148	M	1	Residing	7338	365	7703
425	F	15	Residing	6368	520	6888
469	M	63	Residing	6060	780	6840
424	F	52	Residing	6352	104	6456
147	M	32	Residing	6294	156	6450
145	F	66	Residing	6140	72	6212
426	M	18	Residing	4236	104	4340
286	M	64	Working	2392	414	2806
287	M	52	Working	2392	414	2806
277	M	U	Working	2260	140	2400
278	F	U	Working	2260	140	2400
239	M	U	Working	2073	230	2303
240	M	U	Working	2073	230	2303
241	M	U	Working	2073	230	2303
242	M	U	Working	2073	230	2303
243	M	U	Working	2073	230	2303
244	M	U	Working	2073	230	2303
245	M	U	Working	2073	230	2303
246	M	U	Working	2073	230	2303
247	M	U	Working	2073	230	2303
248	M	U	Working	2073	230	2303
234	F	U	Working	2037	78	2115
235	F	U	Working	2037	78	2115
236	F	U	Working	2037	78	2115
237	F	U	Working	2037	78	2115
238	F	U	Working	2037	78	2115
249	M	28	Working	1955	115	2070
250	M	41	Working	1955	115	2070
253	M	40	Working	587	1368	1955
254	M	65	Working	587	1368	1955
251	F	39	Working	1725	115	1840
252	M	60	Working	1725	115	1840
288	F	62	Working	1265	345	1610
279	M	U	Working	1292	118	1410
280	F	U	Working	1292	118	1410
281	F	U	Working	1292	118	1410
282	F	U	Working	1292	118	1410
255	M	73	Working	345	805	1150
289	M	70	Working	828	276	1104
>0.25 to 0.5 km zone ^a						
453	M	30	Working	3087	98	3185
454	F	54	Working	3087	98	3185
455	M	55	Working	3087	98	3185
461	F	43	Working	2400	100	2500
283	M	49	Working	2372	118	2490
459	M	22	Working	2070	230	2300
460	M	19	Working	2070	230	2300
449	M	9	Attending school	1560	585	2145
450	F	10	Attending school	1560	585	2145
451	M	10	Attending school	1560	585	2145
452	F	11	Attending school	1560	585	2145
256	M	24	Working	1997	118	2115

Table 44. Occupancy rates for adults, children and infants in the Aldermaston direct radiation survey area ($h\ y^{-1}$)

Observation Number	Sex	Age (years)	Activity	Indoor occupancy	Outdoor occupancy	Total occupancy
257	M	29	Working	1997	118	2115
258	M	32	Working	1997	118	2115
259	M	40	Working	1997	118	2115
260	F	19	Working	1997	118	2115
261	F	30	Working	1997	118	2115
262	F	35	Working	1997	118	2115
263	F	36	Working	1997	118	2115
264	F	39	Working	1997	118	2115
284	M	26	Working	1997	118	2115
273	F	63	Working	1997	118	2115
274	M	50	Working	1997	118	2115
275	M	19	Working	1997	118	2115
265	M	51	Working	1955	115	2070
266	M	50	Working	1955	115	2070
267	M	59	Working	1955	115	2070
268	M	35	Working	1955	115	2070
269	M	48	Working	1955	115	2070
270	M	33	Working	1955	115	2070
160	M	46	Working	1750	250	2000
161	M	46	Working	1750	250	2000
456	F	43	Working	1824	96	1920
457	M	44	Working	1824	96	1920
458	M	19	Working	1824	96	1920
164	M	U	Working	1833	47	1880
165	F	U	Working	1833	47	1880
166	F	U	Working	1833	47	1880
427	F	U	Working	1357	345	1702
428	F	U	Working	1357	345	1702
439	M	4	Attending school	1073	585	1658
440	F	4	Attending school	1073	585	1658
441	M	5	Attending school	1073	585	1658
442	F	6	Attending school	1073	585	1658
443	M	6	Attending school	1073	585	1658
444	F	7	Attending school	1073	585	1658
445	M	7	Attending school	1073	585	1658
446	F	8	Attending school	1073	585	1658
447	M	8	Attending school	1073	585	1658
448	F	9	Attending school	1073	585	1658
285	F	25	Working	1567	78	1645
271	F	60	Working	1495	115	1610
272	F	58	Working	1495	115	1610
429	F	U	Working	1098	345	1443
430	M	U	Working	1098	345	1443
462	F	21	Working	1125	100	1225
467	F	38	Working	930	50	980
431	F	U	Working	630	345	975
432	F	U	Working	630	345	975
76	M	U	Farming	-	960	960
163	M	U	Working	-	940	940
226	M	24	Angling	-	912	912
463	F	30	Working	685	50	735
150	M	U	Working	-	672	672
151	M	U	Working	-	672	672
225	M	37	Angling	-	576	576
435	M	U	Working	220	260	480

Table 44. Occupancy rates for adults, children and infants in the Aldermaston direct radiation survey area (h y⁻¹)

Observation Number	Sex	Age (years)	Activity	Indoor occupancy	Outdoor occupancy	Total occupancy
436	M	U	Working	220	260	480
437	F	U	Working	220	260	480
438	F	U	Working	220	260	480
276	F	61	Working	390	50	440
70	M	40	Farming	-	390	390
464	M	17	Working	274	20	294
465	M	17	Working	274	20	294
466	F	17	Working	274	20	294
149	M	U	Working	-	288	288
157	M	U	Angling	-	240	240
158	M	U	Angling	-	240	240
159	M	U	Angling	-	240	240
433	F	U	Working	136	59	195
434	F	U	Working	136	59	195
227	M	42	Dog walking	-	125	125
162	M	31	Working	-	96	96
152	M	U	Working	-	96	96
153	M	U	Working	-	96	96
228	F	11	Dog walking	-	62	62
229	F	5	Dog walking	-	62	62
>0.5 to 1 km zone						
232	M	76	Residing	7806	276	8082
233	F	75	Residing	7806	276	8082
202	M	46	Residing and farming	4749	3325	8074
231	F	52	Residing	6288	1512	7800
182	F	60	Residing	6194	301	6495
110	M	59	Residing	6109	275	6384
203	F	44	Residing	5774	350	6124
181	M	63	Residing	5291	753	6044
204	F	16	Residing	5774	175	5949
205	F	14	Residing	5774	175	5949
230	M	58	Residing	4640	840	5480
134	M	U	Farming	-	335	335

Notes

U = Unknown

^a These data do not contain occupancy rates for residents since those who were approached declined to be interviewed.

See Annex 3 for occupancy rates for residents in this zone from the 2002 habits survey.

Table 45. Occupancy rates for adults, children and infants in the Burghfield direct radiation survey area (h y⁻¹)

Observation Number	Sex	Age (years)	Activity	Indoor occupancy	Outdoor occupancy	Total occupancy
>0.5 to 1 km zone						
142	F	86	Residing	8080	420	8500
420	F	80	Residing	7876	468	8344
421	M	80	Residing	7876	468	8344
138	M	57	Residing	7103	1138	8241
139	F	54	Residing	7103	1138	8241
102	F	U	Residing	7052	1053	8105
38	F	52	Residing	7568	344	7912
106	F	54	Residing	6321	1201	7522
154	M	U	Residing and farming	5599	1750	7349
111	F	59	Residing	6973	275	7248
408	F	65	Residing	6620	624	7244
409	M	63	Residing	6400	624	7024
423	F	58	Residing	5311	1624	6935
413	F	36	Residing	6513	183	6696
414	F	7	Residing	6331	365	6696
415	M	2	Residing	6513	183	6696
113	F	49	Residing	6173	351	6524
114	M	53	Residing	5777	475	6252
116	M	15	Residing	5929	213	6142
117	F	11	Residing	5929	213	6142
108	F	23	Residing	5741	183	5924
412	M	39	Residing	5551	365	5916
107	M	54	Residing	5317	294	5611
37	M	57	Residing	5534	76	5610
112	M	30	Residing	4824	72	4896
141	F	27	Residing	3324	700	4024
140	M	31	Residing	3642	94	3736
109	M	22	Visiting	2786	94	2880
410	F	4	Visiting	2366	260	2626
411	M	6	Visiting	1898	260	2158
40	F	21	Visiting	1848	168	2016
115	M	19	Visiting	797	38	835
143	F	U	Visiting	198	22	220
104	F	47	Visiting	190	10	200
39	M	23	Visiting	154	14	168
103	M	49	Visiting	147	7	154
135	M	U	Farming	-	140	140
136	M	U	Farming	-	140	140
137	M	U	Farming	-	140	140
105	F	46	Visiting	90	10	100
144	M	U	Visiting	52	26	78
422	M	58	Visiting	12	-	12

Notes

U = Unknown

Table 46. Analysis of direct radiation occupancy rates for adults, children and infants in the Aldermaston & Burghfield areas

Number of hours	Number of observations
Aldermaston	
0 to 0.25 km zone	
>8000 to 8760	1
>7000 to 8000	2
>6000 to 7000	5
>5000 to 6000	0
>4000 to 5000	1
>3000 to 4000	0
>2000 to 3000	21
>1000 to 2000	11
0 to 1000	0
0 to 8760	41
>0.25 to 0.5 km zone ^a	
>8000 to 8760	0
>7000 to 8000	0
>6000 to 7000	0
>5000 to 6000	0
>4000 to 5000	0
>3000 to 4000	3
>2000 to 3000	29
>1000 to 2000	24
0 to 1000	31
0 to 8760	87
>0.5 to 1 km zone	
>8000 to 8760	3
>7000 to 8000	1
>6000 to 7000	4
>5000 to 6000	3
>4000 to 5000	0
>3000 to 4000	0
>2000 to 3000	0
>1000 to 2000	0
0 to 1000	1
0 to 8760	12
Burghfield	
>0.5 to 1 km zone	
>8000 to 8760	6
>7000 to 8000	6
>6000 to 7000	8
>5000 to 6000	4
>4000 to 5000	2
>3000 to 4000	1
>2000 to 3000	4
>1000 to 2000	0
0 to 1000	11
0 to 8760	42

Notes

^a These data do not contain occupancy rates for residents since those who were approached declined to be interviewed.

Table 47. Gamma dose rate measurements for the Aldermaston and Burghfield direct radiation survey areas ($\mu\text{Gy h}^{-1}$)

Residences, businesses and schools				
Location	Indoor substrate	Indoor gamma dose rate at 1 metre^a	Outdoor substrate	Outdoor gamma dose rate at 1 metre^a
Residence 1	Concrete	0.096	Grass	0.067
Residence 2	Concrete	0.070	Grass	0.068
Residence 3	Concrete	0.080	Soil	0.072
Residence 4	Wood	0.056	Grass	0.075
Residence 5	Wood	0.078	Grass	0.068
Residence 6	Wood	0.087	Grass	0.080
Residence 7	Concrete	0.083	Grass	0.077
Residence 8	Wood	0.095	Grass	0.082
Residence 9	-	Not taken	Grass	0.081
Residence 10	Stone	0.098	Grass	0.061
Residence 11	Concrete	0.061	Grass	0.065
Residence 12	Concrete	0.069	Grass	0.065
Residence 13	Concrete	0.092	Grass	0.072
Residence 14	Concrete	0.104	Grass	0.079
Residence 15	Concrete	0.094	Grass	0.071
Residence 16	Wood	0.095	Grass	0.081
Residence 17	-	Not taken	Grass	0.054
Business 1	Concrete	0.060	Concrete	0.054
Business 2	Concrete	0.064	Grass	0.071
Business 3	Wood	0.057	Grass	0.056
Business 4	Concrete	0.048	Concrete	0.054
Business 5	Concrete	0.049	Concrete	0.058
Business 6	Concrete	0.050	Grass	0.062
Business 7	-	Not taken	Grass	0.062
Business 8	Concrete	0.055	Tarmac	0.047
Business 9	Concrete	0.061	Tarmac	0.053
School 1	Concrete	0.065	Grass	0.071

Backgrounds				
	Location	NGR	Substrate	Background gamma dose rate at 1 metre
Background 1	Ashampstead Common	SU 575 748	Grass	0.072
Background 2	Near Wellington Park	SU 728 617	Soil	0.062
Background 3	Sherborne St John	SU 639 575	Soil	0.066
Background 4	Crookham Common	SU 518 642	Grass	0.054

Notes^aThese measurements have not been adjusted for background dose rates

Table 48. Combinations of adult pathways for consideration in dose assessments in the Aldermaston & Burghfield areas

Combination number	Freshwater fish (aquatic survey area) ^a	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Freshwater fish (terrestrial survey areas)	Freshwater crustaceans (terrestrial survey areas)	Bankside occupancy over grass	Bankside occupancy over mud, sand and stones	Occupancy in close proximity (<10m) to sewage sludge	Handling fishing gear	Occupancy on water	Indoor occupancy within the direct radiation survey areas	Outdoor occupancy within the direct radiation survey areas	
1							X		X		X																
2		X	X	X	X	X					X	X	X														X
3		X	X	X	X	X							X														X
4											X	X	X		X												X
5		X	X	X	X			X		X			X		X	X											
6		X	X	X	X	X					X	X	X	X		X	X	X									
7			X	X	X	X						X	X		X	X											
8			X	X	X						X	X															X
9		X	X	X	X	X		X	X	X	X	X		X													X
10		X	X	X		X					X	X	X	X			X		X								
11																				X							X
12		X	X		X		X						X			X											
13																									X		
14																									X		
15			X			X	X				X		X		X	X											
16		X	X	X	X							X	X														X
17																				X				X			
18																											X
19	X																										

Notes

The food groups and external exposure pathways marked with a cross are combined for the corresponding combination number. For example, combination number 1 represents an individual (or individuals) from Annex 1 who had positive data in the following pathways; milk, pig meat and poultry.

^aBased on anecdotal evidence (see Annex 3)

Annex 1. Adults' consumption rates (kg y⁻¹ or l y⁻¹) and occupancy rates (h y⁻¹) in the Aldermaston & Burghfield areas

Observation number	Sex	Age (years)	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Freshwater fish (terrestrial survey areas)	Freshwater crustaceans (terrestrial survey areas)	Bankside occupancy over grass	Bankside occupancy over mud, sand and stones	Occupancy in close proximity (<10m) to sewage sludge	Handling fishing gear	Occupancy on water	Indoor occupancy within the direct radiation survey areas	Outdoor occupancy within the direct radiation survey areas
118	M	59	-	5.0	1.1	110.0	12.0	-	-	-	-	-	1.4	2.3	-	1.9	0.5	-	-	-	-	-	-	-	-	-	-
119	F	67	-	5.0	1.1	55.0	3.0	-	-	-	-	-	1.4	2.3	-	1.9	0.5	-	-	-	-	-	-	-	-	-	-
120	F	63	23.8	37.0	26.3	40.0	31.3	-	-	-	-	1.5	11.4	2.1	0.8	-	0.1	25.0	0.5	-	-	-	-	-	-	-	-
121	M	30	23.8	37.0	26.3	40.0	31.3	-	-	-	-	1.5	11.4	2.1	0.8	-	0.1	25.0	0.5	-	-	-	-	-	-	-	-
122	M	28	23.8	37.0	26.3	40.0	31.3	-	-	-	-	1.5	11.4	2.1	0.8	-	0.1	25.0	0.5	-	-	-	-	-	-	-	-
123	F	22	23.8	37.0	26.3	40.0	31.3	-	-	-	-	1.5	11.4	2.1	0.8	-	0.1	25.0	0.5	-	-	-	-	-	-	-	-
124	F	55	14.8	11.3	49.6	20.8	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
125	M	57	14.8	11.3	49.6	20.8	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
126	F	18	7.4	5.6	24.8	10.4	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
127	M	16	14.8	11.3	49.6	20.8	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
128	M	44	-	-	-	-	-	-	-	-	-	0.5	-	0.8	-	0.2	-	-	-	-	-	-	-	-	-	-	-
129	F	43	-	-	-	-	-	-	-	-	-	0.5	-	0.8	-	0.2	-	-	-	-	-	-	-	-	-	-	-
134	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	335
135	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	140
136	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	140
137	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	140
138	M	57	9.4	5.4	12.7	-	4.4	-	-	-	-	-	-	0.9	-	-	-	-	-	-	-	-	-	-	-	7103	1138
139	F	54	9.4	5.4	12.7	-	4.4	-	-	-	-	-	-	0.9	-	-	-	-	-	-	-	-	-	-	-	7103	1138
140	M	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3642	94
141	F	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3324	700
142	F	86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8080	420
143	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	198	22
144	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	26
145	F	66	8.1	0.2	0.5	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6140	72
146	F	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7338	365
147	M	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6294	156
149	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	288
150	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	672
151	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	672
152	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	96
153	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	96
154	M	U	-	-	-	-	-	-	-	-	-	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	5599	1750

Annex 1. Adults' consumption rates (kg y⁻¹ or l y⁻¹) and occupancy rates (h y⁻¹) in the Aldermaston & Burghfield areas

Observation number	Sex	Age (years)	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Freshwater fish (terrestrial survey areas)	Freshwater crustaceans (terrestrial survey areas)	Bankside occupancy over grass	Bankside occupancy over mud, sand and stones	Occupancy in close proximity (<10m) to sewage sludge	Handling fishing gear	Occupancy on water	Indoor occupancy within the direct radiation survey areas	Outdoor occupancy within the direct radiation survey areas	
230	M	58	8.8	15.8	9.8	7.3	24.5	-	-	-	-	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	4640	840	
231	F	52	8.8	15.8	9.8	7.3	24.5	-	-	-	-	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	-	6288	1512
232	M	76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7806	276
233	F	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7806	276
234	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2037	78
235	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2037	78
236	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2037	78
237	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2037	78
238	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2037	78
239	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2073	230
240	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2073	230
241	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2073	230
242	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2073	230
243	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2073	230
244	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2073	230
245	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2073	230
246	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2073	230
247	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2073	230
248	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2073	230
249	M	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1955	115
250	M	41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1955	115
251	F	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1725	115
252	M	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1725	115
253	M	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	587	1368
254	M	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	587	1368
255	M	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	345	805
256	M	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1997	118
257	M	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1997	118
258	M	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1997	118
259	M	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1997	118
260	F	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1997	118
261	F	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1997	118

Annex 1. Adults' consumption rates (kg y⁻¹ or l y⁻¹) and occupancy rates (h y⁻¹) in the Aldermaston & Burghfield areas

Observation number	Sex	Age (years)	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Freshwater fish (terrestrial survey areas)	Freshwater crustaceans (terrestrial survey areas)	Bankside occupancy over grass	Bankside occupancy over mud, sand and stones	Occupancy in close proximity (<10m) to sewage sludge	Handling fishing gear	Occupancy on water	Indoor occupancy within the direct radiation survey areas	Outdoor occupancy within the direct radiation survey areas
335	M	U	15.1	8.2	9.6	5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
336	M	U	15.1	8.2	9.6	5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
337	M	U	15.1	8.2	9.6	5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
339	F	70	30.2	-	23.2	18.1	17.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
340	M	70	30.2	-	23.2	18.1	17.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
341	M	U	3.3	-	1.1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
342	M	U	3.3	-	1.1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
343	M	U	3.3	-	1.1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
344	M	U	3.3	-	1.1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
345	F	U	3.3	-	1.1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
346	F	U	3.3	-	1.1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
347	F	U	3.3	-	1.1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
348	F	U	3.3	-	1.1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
349	F	19	3.3	-	1.1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
350	F	19	3.3	-	1.1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
351	F	17	3.3	-	1.1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
352	F	17	3.3	-	1.1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
359	M	U	14.1	3.8	12.8	47.8	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
360	M	U	14.1	3.8	12.8	47.8	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
361	M	U	4.7	1.6	-	20.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
362	M	U	4.7	1.6	-	20.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
363	F	U	19.6	37.8	7.1	36.4	20.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
364	M	U	19.6	37.8	7.1	36.4	20.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
365	M	U	19.6	37.8	7.1	36.4	20.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
366	M	U	3.5	5.8	0.9	14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
367	F	U	3.5	5.8	0.9	14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
368	M	U	3.5	5.8	0.9	14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
369	M	U	3.5	5.8	0.9	14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
370	F	U	3.5	5.8	0.9	14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
371	F	U	3.5	5.8	0.9	14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
372	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2464	-	-
373	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5214	-	-

Annex 1. Adults' consumption rates (kg y⁻¹ or l y⁻¹) and occupancy rates (h y⁻¹) in the Aldermaston & Burghfield areas

Observation number	Sex	Age (years)	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Freshwater fish (terrestrial survey areas)	Freshwater crustaceans (terrestrial survey areas)	Bankside occupancy over grass	Bankside occupancy over mud, sand and stones	Occupancy in close proximity (<10m) to sewage sludge	Handling fishing gear	Occupancy on water	Indoor occupancy within the direct radiation survey areas	Outdoor occupancy within the direct radiation survey areas	
374	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	504	-	-	-	-	-	-	
375	M	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-
378	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	216	-	-	-	-	-	-	
379	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	216	-	-	-	-	-	-	
380	M	85	-	2.4	3.6	4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
381	M	U	-	2.4	3.6	4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
382	M	U	-	2.4	3.6	4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
383	M	U	-	2.4	3.6	4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
384	M	U	-	2.4	3.6	4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
385	F	U	-	2.4	3.6	4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
386	F	U	-	2.4	3.6	4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
387	F	U	-	2.4	3.6	4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
388	F	U	-	2.4	3.6	4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
389	F	U	-	2.4	3.6	4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
390	M	U	-	0.9	-	-	3.1	190.4	-	-	-	0.3	-	0.3	-	-	0.1	2.6	-	-	-	-	-	-	-	-	-	
391	F	U	-	0.9	-	-	3.1	190.4	-	-	-	0.3	-	0.3	-	-	0.1	2.6	-	-	-	-	-	-	-	-	-	
394	F	18	-	0.9	-	-	3.1	190.4	-	-	-	0.3	-	0.3	-	-	0.1	2.6	-	-	-	-	-	-	-	-	-	
395	F	16	-	0.9	-	-	3.1	190.4	-	-	-	0.3	-	0.3	-	-	0.1	2.6	-	-	-	-	-	-	-	-	-	
396	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	
397	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	
398	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.0	-	-	-	-	-	-	-	
399	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.0	-	-	-	-	-	-	-	
400	M	U	-	6.9	-	-	6.8	-	-	-	-	-	-	0.5	-	-	0.2	-	-	-	-	-	-	-	-	-	-	
401	F	U	-	6.9	-	-	6.8	-	-	-	-	-	-	0.5	-	-	0.2	-	-	-	-	-	-	-	-	-	-	
402	M	65	19.5	13.7	18.6	30.3	4.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
403	F	67	19.5	13.7	18.6	30.3	4.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
404	F	90	19.5	13.7	18.6	30.3	4.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
405	M	91	19.5	13.7	18.6	30.3	4.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
406	M	58	19.5	13.7	18.6	30.3	4.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
407	F	60	19.5	13.7	18.6	30.3	4.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
408	F	65	-	1.8	-	-	0.7	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	6620	624	
409	M	63	-	1.8	-	-	0.7	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	6400	624	

Annex 1. Adults' consumption rates (kg y⁻¹ or l y⁻¹) and occupancy rates (h y⁻¹) in the Aldermaston & Burghfield areas

Observation number	Sex	Age (years)	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Freshwater fish (terrestrial survey areas)	Freshwater crustaceans (terrestrial survey areas)	Bankside occupancy over grass	Bankside occupancy over mud, sand and stones	Occupancy in close proximity (<10m) to sewage sludge	Handling fishing gear	Occupancy on water	Indoor occupancy within the direct radiation survey areas	Outdoor occupancy within the direct radiation survey areas
412	M	39	1.7	6.1	2.7	2.7	-	-	-	-	-	-	5.9	1.2	-	-	-	-	-	-	-	-	-	-	-	5551	365
413	F	36	1.7	6.1	2.7	2.7	-	-	-	-	-	-	5.9	1.2	-	-	-	-	-	-	-	-	-	-	-	6513	183
416	M	U	4.2	18.2	8.1	9.1	-	-	23.7	-	11.3	-	-	0.3	-	0.2	0.1	-	-	-	-	-	-	-	-	-	-
417	F	U	4.2	18.2	8.1	9.1	-	-	23.7	-	11.3	-	-	0.3	-	0.2	0.1	-	-	-	-	-	-	-	-	-	-
418	M	U	4.2	18.2	8.1	9.1	-	-	23.7	-	11.3	-	-	0.3	-	0.2	0.1	-	-	-	-	-	-	-	-	-	-
419	M	U	4.2	18.2	8.1	9.1	-	-	23.7	-	11.3	-	-	0.3	-	0.2	0.1	-	-	-	-	-	-	-	-	-	-
420	F	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7876	468
421	M	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7876	468
422	M	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-
423	F	58	-	-	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5311	1624
424	F	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6352	104
426	M	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4236	104
427	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1357	345
428	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1357	345
429	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1098	345
430	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1098	345
431	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	630	345
432	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	630	345
433	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	136	59
434	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	136	59
435	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	220	260
436	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	220	260
437	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	220	260
438	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	220	260
453	M	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3087	98
454	F	54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3087	98
455	M	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3087	98
456	F	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1824	96
457	M	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1824	96
458	M	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1824	96
459	M	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2070	230
460	M	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2070	230

Annex 1. Adults' consumption rates (kg y⁻¹ or l y⁻¹) and occupancy rates (h y⁻¹) in the Aldermaston & Burghfield areas

Observation number	Sex	Age (years)	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Freshwater fish (terrestrial survey areas)	Freshwater crustaceans (terrestrial survey areas)	Bankside occupancy over grass	Bankside occupancy over mud, sand and stones	Occupancy in close proximity (<10m) to sewage sludge	Handling fishing gear	Occupancy on water	Indoor occupancy within the direct radiation survey areas	Outdoor occupancy within the direct radiation survey areas
461	F	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2400	100	
462	F	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1125	100
463	F	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	685	50
464	M	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	274	20
465	M	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	274	20
466	F	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	274	20
467	F	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	930	50
468	F	46	-	5.3	1.2	4.5	-	-	-	-	-	9.3	83.0	-	-	-	-	-	-	-	-	-	-	-	-	5946	2190
469	M	63	-	5.3	1.2	4.5	-	-	-	-	-	4.8	164.5	-	-	-	-	-	-	-	-	-	-	-	-	6060	780
470	F	82	-	5.3	1.2	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
471	M	82	-	5.3	1.2	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
472	F	20	-	5.3	1.2	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
473	M	28	-	5.3	1.2	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
474	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	-	80	-	-	-	-
475	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	-	80	-	-	-	-
476	M	77	-	-	-	-	-	-	-	-	-	3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
477	F	73	-	-	-	-	-	-	-	-	-	3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
478	M	50	-	-	-	-	-	-	-	-	-	3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
479	M	69	-	-	-	-	-	-	-	-	-	6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
480	M	59	-	-	-	-	-	-	-	4.2	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
481	F	59	-	-	-	-	-	-	-	4.2	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
482	M	U	-	-	-	-	-	-	-	4.2	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
483	F	U	-	-	-	-	-	-	-	4.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
484	M	U	-	-	-	-	-	-	-	4.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
485	F	U	-	-	-	-	-	-	-	4.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
486	M	U	-	-	-	-	-	-	-	4.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
487	F	U	-	-	-	-	-	-	-	4.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
488	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
489	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-
492	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	960	-	-
493	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	960	-	-
494	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	960	-	-

Annex 1. Adults' consumption rates (kg y⁻¹ or l y⁻¹) and occupancy rates (h y⁻¹) in the Aldermaston & Burghfield areas

Observation number	Sex	Age (years)	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Freshwater fish (terrestrial survey areas)	Freshwater crustaceans (terrestrial survey areas)	Bankside occupancy over grass	Bankside occupancy over mud, sand and stones	Occupancy in close proximity (<10m) to sewage sludge	Handling fishing gear	Occupancy on water	Indoor occupancy within the direct radiation survey areas	Outdoor occupancy within the direct radiation survey areas
495	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	960	-	-	-	-
496	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	960	-	-	-	-
497	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	960	-	-	-	-
498	M	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	960	-	-	-	-

Notes

Emboldened observations are the high-rate individuals

U = Unknown

Annex 2. Children's and infants' consumption rates (kg y⁻¹ or l y⁻¹) and occupancy rates (h y⁻¹) in the Aldermaston & Burghfield areas

Observation number	Sex	Age (years)	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Bankside occupancy over mud, sand and stones	Indoor occupancy within the direct radiation survey areas	Outdoor occupancy within the direct radiation survey areas
353	M	15	3.3	-	1.1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
354	M	13	3.3	-	1.1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
355	M	11	3.3	-	1.1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
356	M	10	3.3	-	1.1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
357	M	8	3.3	-	1.1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
358	M	6	3.3	-	1.1	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
376	M	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-
377	M	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-
392	M	14	-	0.9	-	-	3.1	190.4	-	-	-	0.3	-	0.3	-	-	0.1	2.6	-	-	-
393	M	9	-	0.9	-	-	3.1	190.4	-	-	-	0.3	-	0.3	-	-	0.1	2.6	-	-	-
411	M	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1898	260
414	F	7	1.7	6.1	2.7	2.7	-	-	-	-	-	-	5.9	1.2	-	-	-	-	-	6331	365
425	F	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6368	520
442	F	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1073	585
443	M	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1073	585
444	F	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1073	585
445	M	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1073	585
446	F	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1073	585
447	M	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1073	585
448	F	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1073	585
449	M	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1560	585
450	F	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1560	585
451	M	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1560	585
452	F	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1560	585
490	M	10	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-
491	M	12	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-
Infant age group (0 - 5 years old)																					
20	F	4	0.5	1.5	1.3	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
53	F	1	0.3	0.9	0.4	0.1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
57	M	3	0.6	1.9	0.6	0.1	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	F	5	0.2	2.5	0.7	0.7	1.1	-	-	-	-	-	-	0.2	-	-	-	-	-	-	-
86	F	4	-	-	-	-	-	-	1.9	-	-	-	-	0.3	-	0.1	-	-	-	-	-

Annex 2. Children's and infants' consumption rates (kg y⁻¹ or l y⁻¹) and occupancy rates (h y⁻¹) in the Aldermaston & Burghfield areas

Observation number	Sex	Age (years)	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Bankside occupancy over mud, sand and stones	Indoor occupancy within the direct radiation survey areas	Outdoor occupancy within the direct radiation survey areas
87	F	2	-	-	-	-	-	-	0.9	-	-	-	-	0.02	-	0.04	-	-	-	-	-
148	M	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7338	365
176	F	3	9.6	4.6	7.5	21.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
200	M	3	0.9	2.1	2.0	6.8	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
201	M	2	0.9	2.1	2.0	6.8	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
210	M	4	0.1	1.2	0.7	5.5	2.5	-	9.5	7.6	4.0	1.7	5.2	-	0.1	-	-	-	-	-	-
229	F	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	62
314	M	5	26.3	20.7	20.1	-	5.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
315	M	5	26.3	20.7	20.1	-	5.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325	F	0.3	-	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
338	M	5	15.1	8.2	9.6	5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
410	F	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2366	260
415	M	2	1.7	6.1	2.7	2.7	-	-	-	-	-	-	5.9	1.2	-	-	-	-	-	6513	183
439	M	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1073	585
440	F	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1073	585
441	M	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1073	585

Notes

Emboldened observations are the high-rate individuals

Annex 3. Qualitative and estimated data for use in dose assessments

Consumption of freshwater fish

Details of activity	Exposure pathways involved	Estimated rate	Other pathways possibly involved
It was reported that coarse fish, taken from the River Kennet and Kennet and Avon Canal, were being consumed. However, no quantitative data for fish consumption was obtained during the survey (see Section 4.6)	Freshwater fish consumption from water potentially affected by liquid discharges	1 kg y ⁻¹ per person	Bankside occupancy. No rates estimated.

Consumption and occupancy rates for residents in the Aldermaston >0.25 - 0.5km zone from the 2002 habits survey.

Observation number used in the 2002 Survey	Sex	Age (years)	Other vegetables (Kg y ⁻¹)	Domestic fruit (Kg y ⁻¹)	Indoor occupancy (h y ⁻¹)	Outdoor occupancy (h y ⁻¹)	Total occupancy (h y ⁻¹)
270 ^a	F	89	-	-	8748	-	8748
967 ^b	M	3	-	-	6736	1400	8136
966 ^{a,c}	F	U	-	-	6888	1248	8136
205 ^b	F	4	-	-	6405	1643	8048
268 ^a	F	59	-	-	6090	1820	7910
963 ^b	M	1	-	-	4952	2800	7752
962 ^a	M	U	-	-	4438	3170	7608
969 ^a	M	U	-	-	4438	3170	7608
961 ^{a,c}	F	U	-	-	6001	1456	7457
964 ^a	M	U	-	-	4242	3030	7272
965 ^{a,c}	F	U	-	-	4242	3030	7272
968 ^b	F	5	-	-	6601	365	6966
277 ^a	F	75	7.2	5.9	6462	156	6618
278 ^a	F	49	-	5.9	5069	468	5537
279 ^a	M	46	-	5.9	4812	468	5280
269 ^a	M	64	-	-	4360	78	4438

^a Incorporated into profiles for adults. See Annex 6

^b Incorporated into profiles for infants. See Annex 8

^c Incorporated into profiles for woman of childbearing age. See Annex 9.

Annex 4. Ratios for determining consumption and occupancy rates for infants and children

Group	Ratio ^a	
	Infant ^e /adult	Child ^e /adult
Fish ^b	0.050	0.200
Crustaceans ^b	0.050	0.250
Molluscs ^b	0.050	0.250
Green vegetables	0.222	0.444
Other vegetables	0.200	0.500
Root vegetables	0.375	0.500
Potatoes	0.292	0.708
Domestic fruit	0.467	0.667
Milk	1.333	1.000
Cattle meat	0.222	0.667
Pig meat	0.138	0.625
Sheep meat	0.120	0.400
Poultry	0.183	0.500
Eggs	0.600	0.800
Wild/free foods ^c	0.110	0.490
Game ^d	0.140	0.500
Honey	0.789	0.789
Wild fungi	0.150	0.450
Freshwater fish ^b	0.050	0.250
External exposure over intertidal substrates	0.030	0.500

Notes

^aExcepting notes b and c, consumption ratios were derived from Byrom et al., (1995) which presented data for infants aged 6 to 12 months and children aged 10 to 11 years.

^bRatios were derived from Smith and Jones, (2003) which presented data for infants and children of unspecified ages.

^cRatios were derived from FSA data for wild fruit and nuts for infants and 10-year-old children.

^dGame includes rabbits/hares and venison.

^eNote that the age ranges within the age groups in this table do not correspond exactly with the age ranges within the age groups used throughout the rest of this report.

Annex 5. Consumption rates (kg y⁻¹ or l y⁻¹) and occupancy rates (h y⁻¹) for women of childbearing age^a in the Aldermaston and Burghfield areas, for use in foetal dose assessments

Observation number	Sex	Age (years)	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Freshwater fish (terrestrial survey areas)	Occupancy on water	Indoor occupancy within the direct radiation survey areas	Outdoor occupancy within the direct radiation survey areas
169	F	41	36.1	16.5	42.4	69.9	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
175	F	U	19.2	13.4	15.1	42.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
179	F	U	19.2	13.4	15.1	42.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
180	F	U	19.2	13.4	15.1	42.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
190	F	25	-	-	-	-	-	-	15.8	-	3.8	2.1	-	-	-	-	-	-	-	-	-	-
191	F	23	-	-	-	-	-	-	15.8	-	3.8	2.1	-	-	-	-	-	-	-	-	-	-
192	F	21	-	-	-	-	-	-	15.8	-	3.8	2.1	-	-	-	-	-	-	-	-	-	-
198	F	36	1.9	4.3	4.3	13.5	3.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
203	F	44	9.7	9.7	14.5	13.7	-	-	-	-	-	-	-	1.0	-	-	-	-	-	-	5744	350
204	F	16	9.7	9.7	14.5	13.7	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	5774	175
206	F	41	0.1	2.3	1.4	10.9	5.0	-	35.5	28.5	14.8	3.5	5.2	-	0.2	-	-	-	-	-	-	-
213	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	-	-	-
215	F	44	-	-	-	-	-	-	-	-	-	-	-	-	-	1.4	-	-	-	-	-	-
222	F	31	17.9	7.2	21.5	45.5	5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
224	F	21	17.9	7.2	21.5	45.5	5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
234	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2037	78
235	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2037	78
236	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2037	78
237	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2037	78
238	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2037	78
251	F	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1725	115
260	F	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1997	118
261	F	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1997	118
262	F	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1997	118
263	F	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1997	118
264	F	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1997	118
278	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2260	140
280	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1292	118
281	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1292	118

Annex 5. Consumption rates (kg y⁻¹ or l y⁻¹) and occupancy rates (h y⁻¹) for women of childbearing age^a in the Aldermaston and Burghfield areas, for use in foetal dose assessments

Observation number	Sex	Age (years)	Green vegetables	Other vegetables	Root vegetables	Potato	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Freshwater fish (terrestrial survey areas)	Occupancy on water	Indoor occupancy within the direct radiation survey areas	Outdoor occupancy within the direct radiation survey areas
472	F	20	-	5.3	1.2	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
483	F	U	-	-	-	-	-	-	-	-	4.2	-	-	-	-	-	-	-	-	-	-	-
485	F	U	-	-	-	-	-	-	-	-	4.2	-	-	-	-	-	-	-	-	-	-	-
487	F	U	-	-	-	-	-	-	-	-	4.2	-	-	-	-	-	-	-	-	-	-	-
489	F	U	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-	-	-	-	-

Notes

U - Unknown

^a Based on National Statistics guidelines women were deemed to be of childbearing age if they were between 15 and 44 years old. Women of unknown age were included as they were potentially women of childbearing age.

Annex 6. Summary of profiles for adults in the Aldermaston and Burghfield areas

Includes data from the 2002 survey for the residents in the Aldermaston >0.25 - 0.5 km zone. See Annex 3.

Profile Name	Pathway Name																								
	Number of individuals	Crustaceans - Freshwater ^a (terrestrial survey areas)	Direct ^b	Eggs	Fish - Freshwater ^a (terrestrial survey areas)	Fish - Freshwater ^f (aquatic survey area)	Fruit - Domestic	Fruit and nuts - Wild	Gamma ext - Sediments ^c	Honey	Meat - Cow	Meat - Game ^d	Meat - Pig	Meat - Poultry	Meat - Sheep	Milk	Mushrooms	Occupancy in proximity to sewage sludge	Occupancy ON water	Plume (IN; 0-0.25km) ^e	Plume (MID; >0.25-0.5km) ^e	Plume (OUT; >0.5-1km) ^e	Vegetables - Green	Vegetables - Other Domestic	Vegetables - Potatoes
	kg	-	kg	kg	kg	kg	kg	h	kg	kg	kg	kg	kg	kg	l	kg	h	h	h	h	h	kg	kg	kg	kg
Consumers of crustaceans affected by gaseous discharges ^a	3	1.7	-	3.0	-	17.5	1.7	-	-	-	8.5	-	3.0	-	-	-	-	-	-	-	-	2.2	10.4	-	0.75
Occupants for direct radiation	169	-	1.0	1.6	-	0.92	0.18	9.0	-	-	-	-	0.1	-	-	-	-	-	660	1090	1370	1.2	1.3	1.9	1.9
Egg consumers	2	-	1.0	123.8	-	-	-	-	-	-	-	-	7.1	-	-	-	-	-	7490	-	-	-	5.3	4.5	1.2
Consumers of fish affected by gaseous discharges ^a	2	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Consumers of fish affected by liquid discharges ^f	2	-	-	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Domestic fruit consumers	27	0.04	0.19	2.9	0.07	26.3	1.4	-	-	-	4.8	-	0.6	-	-	0.02	-	-	-	14.0	960	23.7	33.1	35.9	23.2
Wild fruit and nut consumers	9	0.11	0.22	0.99	-	13.3	3.9	-	-	-	2.8	-	1.3	-	-	0.22	-	-	-	1390	19.9	18.4	27.8	27.5	
Occupants for exposure - sediment	3	-	0.67	-	-	-	-	660	-	-	-	-	-	-	-	-	-	-	-	500	-	-	-	-	-
Honey consumers	5	-	-	4.7	-	3.0	0.91	4.0	-	-	-	-	1.9	-	-	0.20	-	-	-	-	-	-	2.0	33.0	0.45
Cattle meat consumers	22	-	-	1.2	-	0.45	0.11	0.11	20.4	0.02	2.6	0.89	4.4	-	0.02	0.11	-	-	-	-	-	0.77	3.5	2.6	1.6
Game meat consumers	5	0.2	-	10.9	0.38	35.5	2.6	-	-	-	25.7	-	3.0	-	-	0.10	-	-	-	-	20.3	35.8	32.0	21.5	
Pig meat consumers	3	-	-	8.7	-	3.3	-	-	-	23.7	0.15	44.3	2.6	9.9	-	-	-	-	-	-	-	0.08	1.5	7.3	0.9
Poultry meat consumers	17	0.06	0.12	17.8	-	5.0	0.29	0.64	4.2	1.5	6.3	4.8	1.7	36.0	0.06	-	-	880	-	-	4.6	4.4	12.5	5.5	
Sheep meat consumers	6	-	-	4.3	-	1.7	0.23	0.15	27.6	0.08	9.5	1.2	12.5	-	0.08	-	-	-	-	-	2.8	12.9	9.7	5.9	
Milk consumers	1	-	-	-	-	-	-	-	-	-	12.7	4.5	591	-	-	-	-	-	-	-	-	-	-	-	-
Mushroom consumers	9	-	-	0.3	-	5.3	2.0	0.43	-	-	-	-	1.7	-	0.72	-	-	-	-	-	-	8.0	4.3	38.6	9.8
Occupants near sewage sludge	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	960	-	-	-	-	-	-	-	-
Occupancy ON water	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3840	-	-	-	-	-	-	-
Occupants for plume pathways (inner area)	9	-	1.0	27.5	-	0.33	-	-	-	-	-	-	1.6	-	-	-	-	-	5750	-	-	0.9	1.2	1.0	0.32
Occupants for plume pathways (mid area)	15	-	1.0	-	-	1.2	-	-	-	-	-	-	-	-	-	-	-	-	6230	-	-	0.48	-	-	-
Occupants for plume pathways (outer area)	34	-	1.0	0.35	-	3.3	0.81	-	-	-	-	-	0.04	-	-	-	-	-	-	-	6690	5.6	5.2	7.2	8.9
Green vegetable consumers	32	-	0.06	1.4	0.06	13.9	0.8	-	-	-	3.2	-	0.40	-	0.05	-	-	-	-	-	390	35.9	31.7	45.1	31.1
Other domestic vegetable consumers	27	0.04	0.07	2.0	0.07	19.0	1.3	-	-	-	4.8	-	0.56	-	0.02	-	-	-	-	460	26.6	43.5	35.4	23.4	
Potato consumers	45	-	0.07	2.0	0.04	8.8	0.77	0.12	-	2.3	-	0.35	-	-	0.06	-	-	-	9.0	280	21.7	18.3	56.4	24.9	
Root vegetable consumers	14	-	0.14	-	-	5.0	1.0	-	-	-	-	-	0.48	-	-	0.07	-	-	-	900	38.4	22.1	71.3	53.8	

Notes

^aFreshwater fish and crustaceans consumed from waters within the terrestrial survey area, unaffected by liquid discharges

^bExpressed as the proportion of the profile members who are exposed to direct radiation.

^cGamma ext - sediment represents occupancy over grass and over mud, sand and stones

^dGame meat includes venison and rabbits/hares

^ePlume times are the sum of individuals' indoor and outdoor times

^fConsumers of fish - affected by liquid discharges represent hypothetical anglers within the aquatic survey area

The means of the high-rate groups are determined by the 'cut-off' method and are highlighted on the diagonal

Annex 7. Summary of profiles for the child age group (6 - 15 year olds) in the Aldermaston and Burghfield areas

Profile Name	Number of individuals	Pathway Name																			
		Direct ^a	Eggs	Fruit - Domestic	Fruit and nuts - Wild	Gamma ext - Sediments ^b	Honey	Meat - Cow	Meat - Game ^c	Meat - Pig	Meat - Poultry	Meat - Sheep	Milk	Mushrooms	Plume (IN; 0-0.25km) ^d	Plume (MID; 0.25-0.5km) ^d	Plume (OUT; 0.5-1km) ^d	Vegetables - Green	Vegetables - Other Domestic	Vegetables - Potatoes	Vegetables - Root
		-	kg	kg	kg	h	kg	kg	kg	kg	kg	kg	l	kg	h	h	h	kg	kg	kg	kg
Occupants for direct radiation	18	1.0	0.33	0.33	0.09	-	-	-	-	-	-	-	-	-	380	1120	1500	0.63	0.88	0.91	0.95
Egg consumers	7	0.14	6.4	8.9	0.96	-	-	6.8	0.05	5.4	0.74	2.8	-	-	-	-	960	3.9	9.1	26.5	3.6
Domestic fruit consumers	5	-	5.8	12.5	1.1	-	-	-	-	-	-	-	-	-	-	-	-	6.0	11.9	34.6	4.6
Wild fruit and nut consumers	8	0.13	4.3	6.8	1.1	-	0.06	-	-	-	0.18	-	-	-	-	-	840	3.4	7.6	21.2	2.9
Occupants for exposure - sediment	2	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Honey consumers	3	-	-	-	0.15	-	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cattle meat consumers	2	-	5.2	3.8	-	-	-	23.7	0.17	19.0	2.6	9.9	-	-	-	-	-	0.12	1.7	8.2	1.0
Game meat consumers	2	-	-	3.1	0.32	-	-	-	2.6	-	0.31	-	190.4	0.08	-	-	-	-	0.94	-	-
Pig meat consumers	2	-	5.2	3.8	-	-	-	23.7	0.17	19.0	2.6	9.9	-	-	-	-	-	0.12	1.7	8.2	1.0
Poultry meat consumers	2	-	5.2	3.8	-	-	-	23.7	0.17	19.0	2.6	9.9	-	-	-	-	-	0.12	1.7	8.2	1.0
Sheep meat consumers	2	-	5.2	3.8	-	-	-	23.7	0.17	19.0	2.6	9.9	-	-	-	-	-	0.12	1.7	8.2	1.0
Milk consumers	2	-	-	3.1	0.32	-	-	-	2.6	-	0.31	-	190.4	0.08	-	-	-	-	0.94	-	-
Mushroom consumers	2	-	-	3.1	0.32	-	-	-	2.6	-	0.31	-	190.4	0.08	-	-	-	-	0.94	-	-
Occupants for plume pathways (inner area)	1	1.0	-	-	-	-	-	-	-	-	-	-	-	-	6890	-	-	-	-	-	-
Occupants for plume pathways (mid area)	11	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	1840	-	-	-	-	-
Occupants for plume pathways (outer area)	4	1.0	1.5	1.5	0.42	-	-	-	-	-	-	-	-	-	-	-	6230	2.8	3.9	4.1	4.3
Green vegetable consumers	5	0.20	3.5	8.7	0.77	-	-	-	-	-	-	-	-	-	-	1190	12.3	15.9	22.7	13.4	
Other domestic vegetable consumers	15	0.07	1.9	5.1	0.42	-	-	-	-	-	-	-	-	-	-	400	6.0	12.0	18.1	8.0	
Potato consumers	6	-	4.8	9.1	0.93	-	-	-	-	-	-	-	-	-	-	-	-	5.2	12.9	38.4	7.4
Root vegetable consumers	7	0.14	-	1.5	0.07	-	-	-	-	-	-	-	-	-	-	850	8.9	12.3	14.0	13.2	

Notes

^aExpressed as the proportion of the profile members who are exposed to direct radiation.

^bGamma ext - sediment represents occupancy over mud, sand and stones

^cGame meat includes venison and rabbits/hares

^dPlume times are the sum of individuals' indoor and outdoor times

The means of the high-rate groups are determined by the 'cut-off' method and are highlighted on the diagonal

Annex 8. Summary of profiles for the infant age group (0 - 5 years old) in the Aldermaston and Burghfield areas

Includes data from the 2002 survey for the residents in the Aldermaston >0.25 - 0.5 km zone. See Annex 3.

Profile Name	Pathway Name																	
	Number of individuals	Direct ^a	Eggs	Fruit - Domestic	Fruit and nuts - Wild	Honey	Meat - Cow	Meat - Game ^b	Meat - Pig	Meat - Poultry	Meat - Sheep	Plume (IN; 0-0.25km) ^c	Plume (MID; >0.25-0.5km) ^c	Plume (OUT; > 0.5-1km) ^c	Vegetables - Green	Vegetables - Other Domestic	Vegetables - Potatoes	Vegetables - Root
		-	kg	kg	kg	kg	kg	kg	kg	kg	kg	h	h	h	kg	kg	kg	kg
Occupants for direct radiation	11	1.0	0.54	-	0.11	-	-	-	-	-	-	700	3270	850	0.2	0.6	0.2	0.2
Egg consumers	2	0.50	5.6	1.3	0.58	-	4.7	0.1	3.8	0.9	2.0	-	-	3350	0.9	3.6	4.1	1.7
Domestic fruit consumers	3	-	1.7	4.4	-	-	3.2	0.04	2.5	0.6	1.3	-	-	-	18	14	1.8	14
Wild fruit and nut consumers	1	1.0	5.9	-	1.2	-	-	-	-	-	-	-	-	6700	1.7	6.1	2.7	2.7
Honey consumers	2	-	-	-	0.2	0.1	1.4	-	-	-	-	-	-	-	-	-	-	-
Cattle meat consumers	1	-	5.2	2.5	-	-	9.5	0.11	7.6	1.7	4.0	-	-	-	0.1	1.2	5.5	0.7
Game meat consumers	1	-	5.2	2.5	-	-	9.5	0.11	7.6	1.7	4.0	-	-	-	0.1	1.2	5.5	0.7
Pig meat consumers	1	-	5.2	2.5	-	-	9.5	0.11	7.6	1.7	4.0	-	-	-	0.1	1.2	5.5	0.7
Poultry meat consumers	1	-	5.2	2.5	-	-	9.5	0.11	7.6	1.7	4.0	-	-	-	0.1	1.2	5.5	0.7
Sheep meat consumers	1	-	5.2	2.5	-	-	9.5	0.11	7.6	1.7	4.0	-	-	-	0.1	1.2	5.5	0.7
Occupants for plume pathways (inner area)	1	1.0	-	-	-	-	-	-	-	-	-	7700	-	-	-	-	-	-
Occupants for plume pathways (mid area)	4	1.0	-	-	-	-	-	-	-	-	-	-	7730	-	-	-	-	-
Occupants for plume pathways (outer area)	2	1.0	3.0	-	0.6	-	-	-	-	-	-	-	-	4660	0.8	3.1	1.3	1.3
Green vegetable consumers	4	-	-	2.7	-	-	-	-	-	-	-	-	-	-	19	14	6.7	14
Other domestic vegetable consumers	3	-	-	3.6	-	-	-	-	-	-	-	-	-	-	23	17	1.9	17
Potato consumers	1	-	-	-	-	-	-	-	-	-	-	-	-	-	9.6	4.6	21	7.5
Root vegetable consumers	4	-	-	2.7	-	-	-	-	-	-	-	-	-	-	19	14	6.7	14

Notes

^aExpressed as the proportion of the profile members who are exposed to direct radiation.

^bGame meat is rabbits and hares, no venison consumption was reported for this age group

^cPlume times are the sum of individuals' indoor and outdoor times

The means of the high-rate groups are determined by the 'cut-off' method and are highlighted on the diagonal

Annex 9. Summary of profiles for women of childbearing age in the Aldermaston and Burghfield areas, for use in foetal dose assessments

Includes data from the 2002 survey for the residents in the Aldermaston >0.25 - 0.5 km zone. See Annex 3.

Profile Name	Pathway Name																					
	Number of individuals	Direct ^a	Eggs	Fish - Freshwater ^d (Terrestrial survey areas)	Fruit - Domestic	Fruit and nuts - Wild	Honey	Meat - Cow	Meat - Game ^b	Meat - Pig	Meat - Poultry	Meat - Sheep	Milk	Mushrooms	Occupancy ON water	Plume (IN; 0-0.25km) ^c	Plume (MID; >0.25-0.5km) ^c	Plume (OUT; >0.5-1km) ^c	Vegetables - Green	Vegetables - Other Domestic	Vegetables - Potatoes	Vegetables - Root
	-	kg	kg	kg	kg	kg	kg	kg	kg	kg	kg	kg	l	kg	h	h	h	h	kg	kg	kg	kg
Occupants for Direct Radiation	46	1.0	0.13	-	0.03	0.09	-	-	-	-	-	-	-	-	-	730	1190	850	0.59	0.60	0.65	0.69
Egg Consumers	4	0.25	8.5	0.12	14.5	1.4	-	8.9	6.5	7.1	1.4	3.7	-	0.03	-	-	-	1670	8.9	16.8	30.1	9.6
Consumers of fish affected by gaseous discharges ^d	1	-	11.4	0.47	31.3	2.1	-	-	25.8	-	1.5	-	-	0.13	-	-	-	-	23.8	37.0	40.0	26.3
Domestic Fruit Consumers	3	-	7.6	0.16	24.6	1.4	-	-	8.6	-	0.69	-	-	0.04	-	-	-	-	17.9	32.2	47.7	13.8
Wild Fruit and Nut Consumers	7	0.43	4.1	0.07	7.7	1.6	0.02	-	3.7	-	0.77	-	-	0.20	-	-	-	2990	7.3	11.0	17.6	7.4
Honey Consumers	1	-	-	-	-	-	5.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cattle Meat Consumers	10	-	0.52	-	0.50	0.08	0.1	20.1	0.02	2.8	0.98	3.7	-	0.01	-	-	-	-	0.43	2.0	2.0	0.95
Game Meat Consumers	1	-	11.4	0.47	31.3	2.1	-	-	25.8	-	1.5	-	-	0.13	-	-	-	-	23.8	37.0	40.0	26.3
Pig Meat Consumers	2	-	2.6	-	2.5	-	-	17.7	0.11	20.6	4.0	7.4	-	-	-	-	-	-	0.06	1.2	5.5	0.68
Poultry Meat Consumers	8	-	2.1	0.06	4.5	0.54	-	10.3	3.3	5.1	2.5	3.3	-	0.17	-	-	-	-	3.0	4.9	6.4	3.5
Sheep Meat consumers	2	-	2.6	-	2.5	0.17	0.11	29.6	0.11	14.2	1.7	13.1	-	0.06	-	-	-	-	2.2	10.2	10.0	4.7
Milk consumers	4	-	-	-	2.3	0.29	-	-	2.0	-	0.23	-	175	0.09	-	-	-	-	2.5	3.1	1.1	-
Mushroom consumers	1	-	-	-	-	2.3	-	-	-	-	2.9	-	-	1.3	-	-	-	-	-	-	-	-
Occupants On Water	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2460	-	-	-	-	-	-	-
Occupants for plume pathways (inner area)	2	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	7300	-	-	-	-	-	-
Occupants for plume pathways (mid area)	3	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	7620	-	-	-	-	-	-
Occupants for plume pathways (outer area)	6	1.0	0.99	-	0.26	0.67	-	-	-	-	-	-	-	-	-	-	-	6140	4.5	4.6	5.0	5.3
Green Vegetable Consumers	13	-	0.88	0.04	7.9	0.16	-	-	2.0	-	0.12	-	-	<0.01	-	-	-	-	20.8	18.2	32.6	16.4
Other Domestic Vegetable Consumers	5	-	4.6	0.09	16.3	0.85	-	-	5.2	-	0.41	-	-	0.03	-	-	-	-	22.3	35.7	33.8	13.8
Potato Consumers	17	-	1.3	0.03	6.0	0.25	-	-	1.5	-	0.12	-	-	<0.01	-	-	-	-	14.0	16.2	38.6	14.0
Root Vegetable Consumers	13	0.15	0.88	0.04	4.1	0.27	-	-	2.0	-	0.12	-	-	<0.01	-	-	-	930	16.3	13.6	32.9	20.5

Notes

^aExpressed as the proportion of the profile members who are exposed to direct radiation.

^bGame meat includes venison and rabbits/hares

^cPlume times are the sum of individuals' indoor and outdoor times

^dFreshwater fish consumed from waters within the terrestrial survey area, unaffected by liquid discharges

The means of the high-rate groups are determined by the 'cut-off' method and are highlighted on the diagonal

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