

# Radiological Habits Survey: Aldermaston/Burghfield, 2002



**ENVIRONMENT  
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**Radiological Habits Survey: Aldermaston/Burghfield, 2002**

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## SUMMARY

This report presents the results of a survey conducted in 2002 into the habits and consumption patterns of people living and working in the vicinity of the Atomic Weapons Establishment (AWE) at Aldermaston and the AWE at Burghfield. Both defence-related establishments are licensed to operate under the Nuclear Installations Act, 1965. Under the Radioactive Substances Act, 1993 both sites are authorised to discharge gaseous radioactive wastes to the atmosphere and the Aldermaston site is authorised to discharge liquid radioactive wastes into the River Thames at Pangbourne, the Foudry Brook via the Silchester Sewage Treatment Plant and the Aldermaston Stream (which flows into the River Kennet).

Potential exposure pathways related to these sites included:

- consumption of locally sourced terrestrial and freshwater foods
- occupancy of buildings and the surrounding areas relating to direct radiation
- occupancy of waterways and bank side activities
- handling commercial fishing gear (e.g. eel nets and crayfish pots)
- processing of sewage sludge from the Silchester Sewage Treatment Plant

The survey investigated all of these pathways. Individuals from the local population were interviewed and the data obtained are presented and discussed.

High consumption rates were found in the following food groups: green vegetables, other vegetables, root vegetables, milk, cattle meat, poultry, eggs and honey. Also consumed were potatoes, domestic fruit, pig meat, sheep meat, wild/free foods, rabbits/hares, wild fungi, venison, freshwater trout and crayfish.

Occupancy habits included those related to residential, employment and recreational activities. The main activities relating to freshwater locations included canoeing and boating, angling and a commercial crayfish business. In the terrestrial environment up to 5 km from the

site, the main activities included farming, gardening and allotment maintenance. Within 1 km of the site perimeter, the main occupancies related to employment and residences.

The data from the survey are presented in full for each individual in order to assist in assessments of the additive effects of exposures from multiple pathways. The information recorded during interviews was processed in 2 different ways to identify high rates appropriate to the various aquatic and terrestrial pathways. One method estimated a representative figure for each pathway by selecting a group at the upper end of the distribution of observations. The other chose the 97.5 percentile rate from the distribution.

Comparisons are made with the results from previous surveys. No previous Centre for Environment, Fisheries and Aquaculture Science (CEFAS) surveys have been conducted around the Burghfield site, therefore comparisons only apply to the Aldermaston site.

Recommendations are made for changes to environmental monitoring programmes on the basis of the information collected during the survey.



## **1 INTRODUCTION**

The public may be exposed to radiation as a result of the operations of the Aldermaston and Burghfield AWE sites either from discharges of liquid or gaseous radioactive wastes into the local environment, or from radiation emanating directly from the site. This report provides information about activities members of the public carry out which may influence their radiation exposure. The study has been funded by the Environment Agency, the Food Standards Agency and the Health and Safety Executive in order to support their respective roles in protecting the public from the effects of radiation.

### **1.1 Regulatory framework**

The Environment Agency regulates discharges of waste under the Radioactive Substances Act 1993 (RSA 93) (UK Parliament, 1993) as amended by the Environment Act 1995 (EA 95) (UK Parliament, 1995a) and by legislation implementing the European Union (EU) Basic Safety Standards (BSS) Directive 96/29/Euratom (CEC, 1996). This Directive takes account of recommendations of the International Commission on Radiological Protection (ICRP), particularly ICRP 60 (ICRP, 1991). Authorisations under RSA 93 are issued by the Environment Agency after wide-ranging consultation, including the Food Standards Agency. As well as being a Statutory Consultee, the Food Standards Agency has responsibilities for ensuring that any radioactivity present in food does not compromise food safety and that authorised discharges of radioactivity do not result in unacceptable doses to consumers via the diet. The Food Standards Agency also ensures that public radiation exposure via the diet is within EU accepted limits. Consultation papers on Statutory Guidance to the Environment Agency on the regulation of radioactive waste discharges were issued by the Department for Environment, Food and Rural Affairs (Defra) in 2000 and the Welsh Assembly in 2002. These draft guidance documents include, *inter alia*, affirmation that protection of the critical groups of the public is the appropriate radiological protection methodology to use. This report provides information to support assessments of critical groups.

Operation of nuclear sites anywhere in the UK can only take place if they are licensed under the Nuclear Installations Act 1965 (NIA 65) (UK Parliament, 1965). The Nuclear Installations Inspectorate of the Health and Safety Executive implements this legislation and is also responsible for regulating, under the Ionising Radiations Regulations (IRR99) (UK Parliament 1999), the restriction of exposure of the public to direct radiation from operations occurring on these sites.

## **1.2 Radiological protection framework**

UK policy on the control of radiation exposure has long been based on the recommendations of ICRP which embody the principles of justification of practices, optimisation of protection and dose limitation. The dose standards are embodied in national policy (UK Parliament, 1995b) and in guidance from the International Atomic Energy Agency (IAEA) in the Basic Safety Standards for Radiation Protection (IAEA, 1996). Radiological protection of the public is based on the concept of a critical group of individuals. This group is defined as those people who, because of where they live and their habits, receive the highest radiation dose due to the operations of a site. It follows that, if the dose to this group is acceptable when compared to relevant dose limits and constraints, other members of the public will receive lower doses, and overall protection is provided for.

Legislative dose standards are contained in the EU BSS Directive 96/29/Euratom and subsequently incorporated into UK law in IRR 99. In order to implement the Directive in England and Wales, the Environment Agency were issued a Direction by the Department of the Environment, Transport and the Regions (DETR) (now part of Defra) in 2000 (DETR, 2000). This includes the requirements that the Environment Agency ensure, wherever applicable,

- All public radiation exposures from radioactive waste disposal are kept As Low As Reasonably Achievable (ALARA);
- The sum of such 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.

Guidance on the principles underlying prospective assessments (i.e. assessments of potential future doses) has been provided by a group of UK public bodies (EA, SEPA, DoENI, NRPB and FSA, 2002). Where relevant, this guidance may also be applied to retrospective assessments (i.e. assessments of doses already received). A recent discussion paper (Camplin *et al*, 2002) has considered different ways in which data collected from habits surveys similar to this study may be used to carry out integrated (i.e. combined pathway) dose assessments.

## **2 THE SURVEY**

### **2.1 Site activity**

Nuclear materials are processed at the sites on behalf of the Ministry of Defence. AWE plc is licensed to operate the sites under NIA 65. The sites are managed by AWE Management Ltd and are located in west Berkshire. The Aldermaston site was located approximately 1 km north of Tadley and the Burghfield site was located approximately 3 km east north east of Burghfield Common. Under RSA 93, the Aldermaston site is licensed to discharge both liquid and gaseous radioactive waste and the Burghfield site is licensed to discharge gaseous radioactive waste. Radioactive liquid effluent from the Aldermaston site is discharged into the River Thames at Pangbourne, into the Foudry Brook via the Silchester Sewage Treatment Plant and into the Aldermaston Stream (which flows into the River Kennet). Gaseous wastes from both sites are discharged via stacks to the local environment. Liquid effluent discharges from the Burghfield site ceased in March 2000 following a revised authorisation from the Environment Agency to AWE plc. Details of the amounts of radioactive waste discharged in 2001 can be found in the Environment Agency publication, EA, 2002.

At the time of the survey, AWE were preparing to relocate all the Burghfield work and equipment to the Aldermaston site over the next 5 to 10 years and close the Burghfield site completely. Other than this we were informed that site operations could be considered as normal.

### **2.2 Survey objectives**

CEFAS undertook the survey in 2002 on behalf of the Food Standards Agency, the Environment Agency and the Health and Safety Executive. The aim of the survey was to review habits related to public radiation exposure from the Aldermaston and Burghfield sites via aquatic, terrestrial and direct radiation pathways.

The last aquatic habits survey conducted by CEFAS in the Aldermaston area was in 1991 and the last terrestrial habits survey was conducted in 1997. No previous habits surveys have been conducted around the Burghfield site and no direct radiation surveys have been conducted around either site by CEFAS.

Fieldwork was undertaken in order to obtain site specific habits survey data. These data were used to establish exposure pathways for the local population and the characteristics of those most exposed. General habits survey information for the area was also obtained.

Investigations were carried out to ascertain the following:

- External exposure activities, including angling, water based activities and commercial fishing (e.g. eel netting and crayfish potting) in the relevant waterways
- The production, use and destination of local produce
- The types, seasonality of and extent of consumption of wild foods in the area
- The extent of occupancy within 1 km of the site perimeters
- The distance interviewees lived from the sites if less than 10 kilometres
- The consumption rates of aquatic and terrestrial foods from within the survey areas
- The extent of any unusual practices, which may be relevant
- The fate of sewage sludge from the Silchester Sewage Treatment Plant, which receives liquid effluent from Aldermaston

The survey team also investigated the transfer of contamination by wildlife. In addition, some information was collected that might be relevant to pathways such as the inhalation of re-suspended radioactivity in water spray and the inadvertent ingestion of contaminated water. Where irrigation was found to be taking place the information was recorded.

### **2.3 Survey areas**

Three main areas were defined to encompass the dominant activities expected for aquatic, terrestrial and direct radiation pathways respectively.

The aquatic survey area consisted of a number of waterways shown in Figures 1 - 3. These included the River Thames downstream of the Pangbourne discharge pipe as far as Mapledurham weir and the Aldermaston Stream, both of which receive direct discharges from the Aldermaston site. Attention was also given to the Aldermaston Park Lake through which the Aldermaston Stream flows. The River Kennet was surveyed from the confluence with the Aldermaston Stream downstream to its confluence with the Kennet and Avon Canal and then for a further kilometre downstream. Also included was the Foudry Brook which receives discharges after they have passed through the Silchester Sewage Treatment Plant. The 1991 aquatic survey mainly considered activities occurring on the River Thames from the Pangbourne discharge pipe downstream to Mapledurham weir.

The terrestrial survey area, shown in Figure 4, was defined as the circles to radii of 5 km from the centre of each site, to encompass the main area of potential deposition from gaseous discharges from both sites. The site centre for the Aldermaston site was considered to be SU 600 640 and that for the Burghfield site was considered to be SU 683 681. Since the site centres were approximately 9 km apart, the two circles overlap to produce a single combined survey area for both sites. The 1997 terrestrial survey covered the area within 5 km of the Aldermaston site centre and did not consider the Burghfield site.

For direct radiation, the survey covered the areas within 1 km of both site perimeters, shown in Figures 5 and 6.

## **2.4 Conduct of the survey**

The fieldwork component of the survey was carried out during the period 20<sup>th</sup> June to 2<sup>nd</sup> July 2002, by a survey team of 4 people, according to techniques as described by Leonard *et al.* (1982).

A programme of the work to be conducted was sent to the Environment Agency, the Food Standards Agency and the Health and Safety Executive prior to the survey for comment. A pre-survey discussion between the survey team and the manager and a health physicist responsible for both sites was held prior to the start of the fieldwork via telephone conversations and a site visit. These discussions serve to provide guidance for the conduct of the survey and identify any site-specific items which may require investigation. It also served to provide details of radionuclide storage locations on the sites (relevant to direct radiation) and information about potential pathways and activities in the area. Further information was sought about wildlife studies carried out by the AWE in and around the sites. These included the analysis of droppings from rabbits, pigeons, foxes and geese. Some of these animals could act as vectors for transporting radioactive materials off-site and are also potential food items for some individuals.

People with a local knowledge of the survey area were contacted for information on any aspects relevant to the different exposure pathways. These included the Environment Agency, a commercial fisherman, a farming estate office, fruit and vegetable retailers, the Beekeeping Association, an allotment warden and the Tourist Information Centre.

Individuals who were identified as having the potential to be exposed to radioactivity from the site were contacted and interviewed. The survey did not involve the whole population in the vicinity of Aldermaston/Burghfield area, but targeted a subset of it. Interviews were used to

establish individuals' consumption rates of locally produced, collected or hunted terrestrial foods and local freshwater foods, and individuals' occupancy times relevant to external exposure and direct radiation. Any general information of possible use to the survey was also obtained. Using the information gained from the interviews, a list of occupations and activities was built up to produce a picture of potential exposure pathways. This then enabled emphasis to be placed on those individuals who were likely to be the most exposed and included allotment tenants, gardeners, beekeepers, farmers, boating club members, anglers and individuals living and/or working close to the site.

The aquatic, terrestrial and direct radiation elements of the survey primarily targeted pathways relevant to those areas of interest. For example, people interviewed for their terrestrial food consumption were initially asked questions relating to terrestrial foods. However, every interviewee was questioned about all other pathways. During interviews with representatives from commercial organisations and schools based within the direct radiation survey area it was not possible to collect data for every pathway for all individuals identified. In these cases, data were limited to indoor and outdoor occupancy within 1 km of the site perimeter, provided by the managers and head teachers. Such individuals only have data for indoor and outdoor occupancy in Annexes 1 and 2.

Approximately 36 person-days were spent conducting interviews, and observations for in excess of 1000 individuals were recorded. During the survey, some gamma dose measurements were taken to aid assessment of external exposure pathways.



### **3 METHODS FOR DATA ANALYSIS**

#### **3.1 Data recording**

The 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 telephone call. The raw data were entered into a database where each individual for whom information was obtained was given a unique identifier (the observation number) to assist in maintaining data quality.

During the interviews, people could not always provide consumption rates in kilograms per year (kg/y) for food or litres per year (l/y) for milk. In these cases, interviewees were asked to provide the information in a different format. For example, some estimated the number of items, e.g. eggs consumed per year, whereas others gave the number of tomato plants in a crop or the length and number of rows in which the crop was grown. The database converted these data into consumption rates (kg/y for food and l/y for milk) using a variety of conversion factors. These 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. For the purpose of data analysis, foodstuffs were aggregated into food groups as identified in Table 1.

All consumption and occupancy data in the text of this report are rounded to 2 significant figures to reflect the authors' judgement on the accuracy of the methods used. In the tables and annexes, the consumption rate data are usually presented to 1 decimal place. The exception is for consumption rates less than 0.05 kg/y, which are presented to 2 decimal places, in order to avoid them appearing as 0.0 kg/y. External exposure data are quoted as integers.

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

- Experienced scientific staff were used for fieldwork and data assessment. They had been trained in the techniques of interviewing and obtaining data for all pathways which were relevant to the survey being conducted. Where individuals offered information during interview which was unusual, they were questioned further in order to double check the validity of their claims
- Interviewees were contacted again to confirm the results of the initial interview if, when final consumption rates were calculated, observations were found to be high in relation to our experience of other surveys, taking into account local factors
- Data were stored in a database in order to minimise transcription and other errors
- Draft reports and data tables were formally reviewed by senior CEFAS staff
- Final reports were only issued when the Food Standards Agency, the Environment Agency and the Health and Safety Executive were entirely satisfied with the format and content of the draft

The habits data are structured into groups of activities with similar attributes. 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 fish species, for example, are grouped as 'fish'. For external exposure over bank side sediments, occupancy over a common substrate (for example, mud) is chosen. The choice of a group of activities is made when it is reasonable to assume that consistent concentrations or dose rates would apply within the group. In addition to grouping of activities, ingestion data are structured into age groups because different dose coefficients (i.e.: the factors which convert intakes of radioactivity into dose) can apply to different ages. These age groups are from 0 to 1.0 y of age (called 3 months); more than 1.0 y to 2.0 y (called 1 year old); more than 2.0 y to 7.0 y (called 5 year old); more than 7.0 y to 12.0 y (called 10 year old); more

than 12.0 y to 17.0 y (called 15 year old). Individuals over 17 are treated as adults. These age groupings are consistent with those used in ICRP 72 (1996). For direct radiation pathways the data are grouped into distance zones from the site perimeter as a coarse indication of the potential dose rate distribution due to this source of exposure. The bands used were: 0 – 0.25 km, 0.25 – 0.5 km and 0.5 – 1 km.

### **3.2 Data analysis**

The main output of the study is the statement of individuals' consumption, handling and occupancy rates given in Annexes 1 and 2. These can be used by those undertaking radiological assessments of the effects of the operation of Aldermaston and Burghfield sites – taking into account the concentration and/or dose rate distributions in space and time relevant to the assessment. It is only with the outcome of such an assessment that the critical group can strictly be defined as those most exposed.

In addition to providing the data in the Annexes, we have also analysed them to provide estimates of rates of occupancy, handling and consumption which can be regarded as typical of those most exposed prior to a formal assessment being undertaken. Two approaches are used.

Firstly, the 97.5 percentile rate was calculated for each group using the Excel mathematical function for calculating percentiles. This method accords with precedents used in risk assessment of the safety of food consumption. Mean and 97.5 percentile rates based on national statistics have been derived by MAFF and FSA (Byrom et al, 1995 and FSA, 2002), and these are referred to as generic rates in this report. Secondly, 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 maximum observed rate and all rates observed within a factor of 3 of the maximum value (termed the lower threshold value). It accords with the principle expressed by ICRP (ICRP, 1984) that the critical group should be small enough to be reasonably homogeneous with respect to age, diet and those aspects of

behaviour that affect the doses received. In this report, the term critical group rate is used to represent the data derived by the 'cut-off' method for ease of presentation. A separate critical group rate was calculated for each food group or activity identified in the survey.

In exceptional cases the 'cut-off' method can result in only 1 person in the high rate group. In this case, judgement is used as to whether to include other individuals within the group.

For ingestion pathways, high rates for children have been calculated from the survey data. However because few child consumers were identified the rates should be viewed with caution. For assessment purposes, an alternative, theoretical approach may be taken which involves scaling the critical group rates for adults by ratios. These ratios are given in Annex 3 and have been calculated using generic 97.5 percentile consumption rates.

Selection of 97.5 percentile and critical group rates for occupancy is not made for the direct radiation pathway. Such an analysis is of limited value without a detailed knowledge of the spatial extent of dose rates due to direct radiation.

## **4 AQUATIC RADIATION PATHWAYS**

### **4.1 Aquatic survey areas**

The aquatic survey areas for the Aldermaston site are shown in Figures 1 to 3. They comprised:

- the River Thames from the Pangbourne pipe discharge point downstream to Mapledurham Weir
- the Aldermaston Stream and the Aldermaston Park Lake, through which the latter passes
- the Foudry Brook
- the River Kennet (from its confluence with the Aldermaston Stream to its confluence with the Kennet and Avon Canal)
- the Kennet and Avon Canal (from where the River Kennet enters, downstream for 1 km)

No aquatic survey areas were considered for Burghfield because the site is not authorised to discharge radioactive liquids.

#### **River Thames**

The survey team investigated activities occurring on the river and bank side between the Pangbourne pipe discharge point and Mapledurham Weir. This was carried out during a weekend as it was hoped to maximise the number of leisure activities observed along the river. The bank side was for the most part grazing land for livestock. Although the riverside path was well used by dog walkers and walkers, it was noted that 'No Fishing' signs were numerous indicating that angling, upstream of Mapledurham Weir, was restricted to fishing from moored boats. Only one angler was observed who was fishing on the north bank from a private section of bank side. Boating activity was popular with numerous canoeists, power craft users and rowers observed. Mapledurham Lock was manned by one full time lock keeper and an auxiliary lock keeper. Below the lock, in the weir pool, evidence of frequent

angling was observed (boot prints in muddy clearings cut in bank side vegetation). Only 2 anglers were present at the time of the visit.

### **The Aldermaston Stream**

The Aldermaston Stream, after leaving the site, flows through Aldermaston Park Lake which is used as a sanctuary for swans recovering from injuries. No activities such as boating or fishing are allowed on the lake although members of the public are permitted to use the park facilities for walking and dog walking. After flowing out of the lake the stream flows through Aldermaston village and crosses countryside, where it had a combination of muddy and grassed bank side areas, before flowing into the River Kennet. Although crayfish lived in the stream, no evidence was noted of anybody fishing for them. Angling was not observed and was also thought to be unlikely due to the small volume of water in the stream.

### **The Foudry Brook**

The Foudry Brook was another small and shallow stream of approximately 2 metres in width. During the time of the survey it was very overgrown with brambles and bushes, and access to members of the public would have been difficult. It did not appear suitable for angling and no public activity was observed.

### **River Kennet and Kennet and Avon Canal**

The River Kennet receives water from the Aldermaston Stream and flows east to Ufton Bridge, where it confluences with the Kennet and Avon Canal. Activities noted during the survey on these watercourses were fishing (commercial and recreational) and boating.

## **4.2 Commercial fisheries**

Commercial trapping of signal crayfish (*Pacifastacus leniusculus*) was identified on the River Kennet and the Kennet and Avon Canal. The manager of the business estimated that the average annual catch would usually be between 20 and 30 tonnes per year. With the exception of a few kilograms per year eaten by this individual's family, none were consumed locally. The catch was exported to buyers in Sweden, France and Spain.

A trout farm which utilised water from the River Kennet was located near Padworth. The owner reared approximately 200 to 250 tonnes of rainbow trout (*Oncorhynchus mykiss*) per year. All the annual production was sold to a company in Hampshire, with none being consumed locally.

No commercial trapping for eels was noted during the survey. The Environment Agency was contacted regarding this activity and it informed the team that eel netting was not permitted in the waterways relevant to the survey.

## **4.3 Angling**

Angling was noted to be a very popular pastime on some of the waterways relating to Aldermaston discharges and in the many lakes within the terrestrial survey area. Angling was predominantly for coarse fish species with very limited trout fishing facilities existing in the area. No coarse fish consumption from any source was identified and only a very small amount of trout consumption was noted.

## **4.4 Other aquatic food pathways**

Nobody was identified who consumed any edible aquatic flora. However, it was noted that water from the Aldermaston Stream was used by tenants of the Aldermaston allotments to water their plants.

Silchester Sewage Treatment Plant, which receives liquid radioactive waste from Aldermaston, separates the crude effluent into sludge and final effluent components. Effluents are discharged to the Foudry Brook. The sludge is transported to Basingstoke Sewage Treatment Plant where it is mixed with sludge from other areas of the county. It then receives further liquid reduction and some chemical preparation to remove E.coli bacteria before being distributed nationally as field dressing to farmers.

#### **4.5 Internal exposure**

One local angler and his family consumed rainbow trout which he caught from a lake near Brimpton Common. This lake is not affected by liquid discharges, but may be relevant to atmospheric discharges. Another family consumed small quantities of freshwater crayfish trapped in the River Kennet and Kennet and Avon Canal. Consumption data for freshwater aquatic species are presented in Tables 2 and 3 for adults and Tables 4 and 5 for children. These tables include the mean consumption rates of the critical groups together with the observed 97.5 percentile rates calculated as described in Section 3.2. For purposes of comparison, the data are summarised in Table 6 for adults and Tables 7 and 8 for 15 year olds and 10 year olds respectively. The summary tables also include the generic mean and 97.5 percentile rates. No fish consumption was noted from any of the watercourses which related to liquid discharges.

##### **Adult consumption rates**

Two adults consumed fish (rainbow trout) at a mean rate of 1.2 kg/y, which was also the maximum rate. The observed 97.5 percentile rate based on 2 observations is 1.2 kg/y. Generic consumption rates for freshwater fish are not available but values for all fish species are 15 kg/y and 40 kg/y for mean and 97.5 percentile rates respectively.



Two adults consumed crustaceans (signal crayfish) at a mean rate of 1.2 kg/y, which was also the maximum rate. The observed 97.5 percentile rate based on 2 observations is 1.2 kg/y. Generic consumption rates for freshwater crustaceans are not available but values for marine crustaceans are 3.5 kg/y and 10 kg/y for mean and 97.5 percentile rates respectively.

## **Children's consumption rates**

### **15 year age group**

Two children consumed fish (rainbow trout) at a mean rate of 1.2 kg/y, which was also the maximum rate. The observed 97.5 percentile rate based on 2 observations is 1.2 kg/y. Generic consumption rates for freshwater fish are not available but values for all fish species are 6.5 kg/y and 20 kg/y for mean and 97.5 percentile rates respectively.

One child consumed crustaceans (signal crayfish) at a rate of 1.2 kg/y. Generic consumption rates for freshwater crustaceans are not available but values for marine crustaceans are 2.5 kg/y and 6 kg/y for mean and 97.5 percentile rates respectively.

### **10 year age group**

One child consumed fish (rainbow trout) at a rate of 1.2 kg/y. Generic consumption rates for freshwater fish are not available but values for all fish species are 6.0 kg/y and 20 kg/y for mean and 97.5 percentile rates respectively.

One child consumed crustaceans (signal crayfish) at a rate of 1.2 kg/y. Generic consumption rates for freshwater crustaceans are not available but values for marine crustaceans are 2.5 kg/y and 7 kg/y for mean and 97.5 percentile rates respectively.

## **4.6 External exposure**

### **Occupancy**

The crayfish fishery on the River Kennet and Kennet and Avon Canal involved two people removing the catch from traps and re-baiting them, working from the bank side for approximately 320 h/y during the months of July to October.

This survey did not record any individuals spending significant occupancy times on the Pangbourne section of the River Thames bank side. However, the 1991 aquatic survey identified a mean bank side occupancy here of 360 h/y, so it would be prudent to assume the same occupancy rate as for the River Kennet to allow for possible future activities.

No other occupancies were noted in the other areas of the aquatic survey.

Silchester Sewage Treatment Plant received liquid effluent from Aldermaston. After preliminary reduction of liquids, the sewage sludge was transported by tanker to the Basingstoke Sewage Treatment Plant. At the time of the survey the Basingstoke plant was receiving approximately 14,000 cubic metres of sewage sludge from the Silchester plant per year. This volume, however, represented only a small percentage of the Basingstoke plant's annual throughput of sludge, therefore there was substantial dilution of that coming from the Silchester plant. After final processing at Basingstoke, all sludge was distributed nationally to farms for field dressing. The Silchester plant was unmanned and although the Basingstoke plant was operated by two full time members of staff, the sewage treatment processes are fully automated and no manual intervention was required.

### **Handling**

Handling sediment, while bait digging or handling commercial fishing gear, which has become entrained with fine sediment particles, can give rise to skin exposure from beta radiation. This

needs consideration even though the annual dose limit for skin is a factor of 50 times higher than that for effective dose. There is also a contribution to effective dose due to skin exposure (ICRP, 1991).

Fishing gear can also be a source of whole body gamma exposure due to occupancy in the vicinity of the gear. However, this pathway is insignificant compared with the same exposure received during occupancy over water washed areas and it has therefore been omitted from the report.

Only 2 crayfish fishermen were noted to be handling commercial fishing gear. They were working on the River Kennet and Kennet and Avon Canal and both had an annual handling rate of 320 hours. Nobody was observed handling bank side sediment.

#### **4.7 Water based activities**

Activities taking place in or on the water can lead to ingestion of water and/or inhalation of spray. These 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 establishment. However, in order to allow for their assessment, relevant data have been collected and are included in the Annexes.

##### **Activities on the water**

The River Thames in the Pangbourne area was used by a local water sports club on a daily basis. Canoeing and rowing were the main activities pursued by the club's members and day visitors. The club had 300 regular members and hundreds of day visitors per year. During 2001, the club recorded approximately 38,000 person sessions on the river at this location. The club representative who was interviewed said that there were 15 really keen members who would be on the water for possibly 900 h/y. However, approximately 50% of this time would be spent upstream of the discharge point. The club's youngest junior members were 14

years of age. Some individuals were interviewed who used powered craft on the Pangbourne section of the river. They said that they only spent a few hours per year on this section of river when they cruised through. The Kennet and Avon Canal was noted to be very popular with narrow boat and cruiser users with a regular flow of boating traffic passing through, but the individuals involved could not be interviewed. The majority of the boating activity is seasonal commencing at Easter through the summer until October.

No water based activities were observed taking place on the River Kennet, the Aldermaston Stream or Foudry Brook.

### **Activities in the water**

No activities taking place in water (e.g. swimming) were observed during the survey.

## **5 TERRESTRIAL RADIATION PATHWAYS**

### **5.1 Terrestrial survey area**

The terrestrial survey area covered all land within the 2 overlapping 5 km radius circles centred on the Aldermaston and Burghfield sites shown in Figure 4.

The largest towns inside the survey area were the southern portion of Reading, Tadley, Pamber Heath, Mortimer, and Burghfield Common. The area was also characterised by lots of small villages and towns such as Aldermaston, Burghfield, Aldermaston Wharf, Padworth, Silchester, and Woolhampton. The predominant land use was farming, with over 40 working farms located in the area. There were also large areas of woodland.

Most of the area was rural, so the owners of residences usually had adequate gardens to grow fruit and/or vegetables if they choose to do so. A few residences also kept poultry for their households' egg supply. There were three main groups of allotments at Aldermaston, Tadley and Burghfield Common. In addition, there were three smaller allotment areas near Heath End, Woolhampton and Burghfield. The locations of these allotments are shown in Figure 4. Many varieties of fruit and vegetables were grown on them to supply the needs of the tenants' households and families. In some instances excess produce was sold locally to offset the cost of renting allotment plots. One market garden was identified in the survey area selling its produce directly to the public from the doorstep.

Dairy farming predominated in the area although many farmers had combinations of dairy and beef or dairy, beef and sheep. A dairy located within the survey area bought the majority of milk produced by the farmers. There were a small number of pig farms and one farm reared battery housed poultry. The livestock reared in the area was mainly sold through meat markets in Chippenham, Thame and Salisbury, so the meat was dispersed on a national scale.

Some farming families retained some of their reared animals for their households' consumption and also consumed local game shot on their farmland. Dairy farmers and their families were noted to consume milk from their own herds.

Most arable crops grown on farms in the area were used for winter feed for their livestock. However, a large estate grew combinable crops, such as linseed, rape, wheat, barley, peas and beans, for processing into products for public distribution. Exposure pathways relevant to farmed arable crops are not considered further in this report.

Two beekeepers were identified in the survey area, one of whom was a member of the Commercial Beekeepers Society. He owned in excess of 50 hives and annually produced approximately 1750 kg of honey.

Wild fruit was plentiful in the survey area with many of the country lanes and footpaths containing blackberry, sloe and elderberry bushes. Wild mushrooms were also consumed, usually by farmers who collected them from their own fields.

The shooting of game was common, with rabbits, pigeons, pheasants, partridge and deer figuring among those species hunted. A large estate also hosted regular pheasant shooting days and vacations for groups of individuals.

## **5.2 Terrestrial food wholesalers and retailers**

Retailers in the survey area were contacted to investigate whether any produce was sourced from the survey area. It was noted that some of the milk from the local dairy would come from farms within the area, but it would be significantly diluted by milk from outside it. One farm sold all its meat, including poultry, through its own butcher's shop located at the farm. The shop also had a game licence and sold pheasants, partridges, wild ducks, rabbits and deer that were shot locally. Local honey was also noted to be sold by some shops and a garden centre.

### **5.3 Internal exposure**

Consumption data for terrestrial food groups are presented in Tables 11 to 26 for adults and Tables 27 to 42 for children. These tables include the mean consumption rates of the critical groups together with the observed 97.5 percentile rates calculated as described in Section 3.2. For purposes of comparison, the data are summarised in Table 6 for adults and in Tables 7 to 10 for children (15 year olds, 10 year olds, 5 year olds and 1 year olds respectively). No children in the 3 month old age group were noted to consume locally produced terrestrial foods. The summary tables also include generic mean and 97.5 percentile rates.

In order to provide information relevant to surveillance and assessments studies, the consumption rate data collected during the survey were analysed to indicate which food types most commonly contributed to each food group. These data are summarised in Table 43. Those food types shown in bold and labelled with an asterisk were sampled as part of the 2001 Food Standards Agency monitoring programme (FSA and SEPA, 2002).

#### **Adult consumption rates**

Consumption of terrestrial foods was identified in the following 16 food groups: green vegetables, other vegetables, root vegetables, potatoes, domestic fruit, milk, cattle meat, pig meat, sheep meat, poultry, eggs, wild/free foods, rabbits/hares, honey, wild fungi and venison. No consumption of local cereals was identified.

When compared with the generic 97.5 percentile consumption rates, the critical group mean consumption rates were greater for green vegetables, root vegetables and honey. A further 10 critical group mean consumption rates were equal to or exceeded the generic mean consumption rates. These were for other vegetables, potatoes, domestic fruit, milk, cattle meat, pig meat, sheep meat, poultry, eggs and wild fungi. In addition venison, for which there are no generic data, was consumed. Seven observed 97.5 percentile consumption rates

exceeded the generic 97.5 percentile consumption rates. These were for green vegetables, other vegetables, root vegetables, milk, cattle meat, eggs and honey.

## **Children's consumption rates**

### **15 year old age group**

Twenty-six children in this age group were identified to be eating locally produced terrestrial food. Consumption of terrestrial foods was identified in the following 9 food groups: green vegetables, other vegetables, root vegetables, potatoes, domestic fruit, milk, pig meat, eggs and honey. No consumption was identified for the following food groups: cattle meat, sheep meat, poultry, wild/free foods, rabbits/hares, wild fungi, venison and local cereals. No critical group mean consumption rates exceeded the generic 97.5 percentile consumption rates. The critical group mean consumption rates for other vegetables, root vegetables, milk and pig meat were higher than their respective generic mean consumption rates. Only for milk did the observed 97.5 percentile consumption rate exceed the generic 97.5 percentile consumption rate.

### **10 year old age group**

Twenty-two children in this age group were identified as eating locally produced food. Consumption of terrestrial foods was identified in the following 11 food groups: green vegetables, other vegetables, root vegetables, potatoes, domestic fruit, milk, cattle meat, poultry, eggs, rabbits/hares and wild fungi. No consumption was identified for the following food groups: pig meat, sheep meat, wild/free foods, honey, venison and local cereals. For green vegetables, root vegetables and potatoes, the critical group mean consumption rates exceeded the generic 97.5 percentile consumption rates. For 3 further food groups, other vegetables, milk and wild fungi, the critical group mean consumption rates were higher than the generic mean consumption rates. In addition, rabbits/hares, for which there were no generic data for 10 year olds, were consumed. The observed 97.5 percentile consumption



rates for green vegetables, other vegetables, root vegetables, potatoes and milk exceeded the generic 97.5 percentile consumption rates.

### **5 year old age group**

Eleven children in this age group were identified to be eating locally produced food. Consumption of terrestrial foods was identified in the following 10 food groups: green vegetables, other vegetables, root vegetables, potatoes, domestic fruit, milk, sheep meat, eggs, wild/free foods and venison. No consumption was identified for the following food groups: cattle meat, pig meat, poultry, rabbits/hares, honey, wild fungi and local cereals. No generic 97.5 percentile or generic mean consumption rates have been determined for this age group, therefore no comparisons with the observed corresponding rates could be made.

### **1 year old age group**

One child in this age group was identified to be eating locally produced food. Consumption of terrestrial foods was identified in the following 4 food groups: green and other vegetables, potatoes and domestic fruit. No consumption was identified for the following food groups: root vegetables, milk, cattle meat, pig meat, sheep meat, poultry, eggs, wild/free foods, rabbits/hares, honey, wild fungi, venison and local cereals. Again, no generic 97.5 percentile or generic mean consumption rates have been determined for this age group, therefore no comparisons with the observed corresponding rates could be made.

## **6 ALDERMASTON DIRECT RADIATION**

### **6.1 Direct radiation survey area**

The direct radiation survey area covered all land within 1 km radius of the site perimeter fence as shown in Figure 5. Residential areas included Heath End, Baughurst Common, Mount Pleasant, Aldermaston village and Pamber Heath. Employment in the area was concentrated onto two large business parks which were located to the west of the Aldermaston site, although other businesses were noted to be inside the survey area. Leisure facilities were noted and the area also contained schools, shops, churches, a public house and a hotel.

The survey area contained a significant amount of farmed land, both arable and dairy and there were also large areas of forest and woodland.

### **6.2 Residential activities**

Some locations in the direct radiation area around the Aldermaston site were densely populated and were quite close to the perimeter fence. The nearest was Heath End which was very close to the south west section of the perimeter fence. Other locations such as Baughurst Common, Mount Pleasant, Aldermaston village and Pamber Heath, although less densely populated, still contained a significant number of dwellings. These urban areas consisted of mixed communities of both retired people and younger couples with children in their families. Residents were targeted for interview on the basis of their proximity to the site.

### **6.3 Leisure activities**

Leisure activities were noted to occur within the survey area. These included walking and dog walking around the nearby lakes and footpaths, angling in the lakes, people playing golf on the portion of Tadley golf course which was inside the survey area and people playing and

watching rugby at the Tadley pitch. In addition, there were local shops, a pottery gallery in Aldermaston Village, churches, public houses and a hotel.

#### **6.4 Commercial activities**

Certain areas around the Aldermaston site contained numerous businesses and services which employed a large number of staff. Located adjacent to the south west corner of the site perimeter was Calleva Park which included approximately 110 businesses. Youngs Industrial Estate located to the west of the site contained over 50 further businesses. In addition to these 2 major business locations, there were other companies located within 1 km of the site. Four schools, a kindergarten and 4 farms were also located within the survey area.

#### **6.5 Occupancy times**

Table 44 presents the indoor, outdoor and total occupancy data for adults and children, and includes distances from the perimeter fence for these observations. An analysis of the data by distance zones and occupancy times is shown in Table 45.

##### **Occupancy times within 0 – 0.25 km of the site perimeter fence**

Occupancy data were obtained for 344 individuals in the 0 to 0.25 km zone. Most of the observations were for employees at the 2 major business parks although approximately 60 observations were of a residential nature. The highest total occupancy time was 8700 h/y.

##### **Occupancy times within 0.25 – 0.5 km of the site perimeter fence**

Occupancy data were obtained for 87 individuals in the 0.25 to 0.5 km zone. Again, many of the observations were for employees working in this radius zone with approximately 30 observations being of a residential nature. The highest total occupancy time was again 8700 h/y.

## **Occupancy times within 0.5 – 1 km of the site perimeter fence**

Occupancy data were obtained for 211 individuals in the 0.5 to 1 km zone. The observations were mainly for children attending schools with approximately 35 observations being of a residential nature. The highest total occupancy was also 8700 h/y.

## **6.6 Gamma dose rate measurements**

Table 46 presents gamma dose rate measurements taken in the Aldermaston direct radiation survey area. It should be noted that the measurements have not been adjusted for natural background. Gamma dose measurements were taken at a representative selection of properties, both indoor and outdoor. The outdoor measurements, which were taken between 5 and 10 metres distant from the buildings, ranged from 0.054 to 0.072  $\mu\text{Gy}/\text{h}$ . All of the measurements, including the lowest and highest results were taken over grass apart from 1 taken over tarmac. The indoor measurements ranged from 0.052 to 0.127  $\mu\text{Gy}/\text{h}$ , with the lowest result in a caravan and the highest in a house. The higher measurements should be viewed with caution bearing in mind that the majority of radioactive materials on the site are actinides and tritium. Measurements that were taken inside buildings were found to be generally higher than those taken outside. This is most likely to be due to natural radioactivity in the construction of the building rather than any artificial source.

Background gamma dose rate measurements, also shown in Table 46, were taken further afield for comparison. These were all over grass and ranged from 0.054 to 0.061  $\mu\text{Gy}/\text{h}$ .

Comprehensive studies of background radiation have been carried on a national scale by NRPB, the most recent of these being a review conducted during 1999 (Hughes, 1999). The results from these could also be used for comparison.

## **7. BURGHFIELD DIRECT RADIATION**

### **7.1 Direct radiation survey area**

The direct radiation survey area covered all land within 1 km radius of the site perimeter fence as shown in Figure 6. It included 2 hamlets – Burghfield Place to the west and Grazeley Green to the south. The majority of the survey area was farmland and the unlicensed part of the Burghfield AWE site with some small areas of woodland. Two working farms were noted inside the area.

### **7.2 Residential activities**

Compared to the Aldermaston survey area, the Burghfield area was sparsely populated, with approximately 45 residences in it. Most of these were in Burghfield Place and Grazeley Green. The community was a mix of age groups, with both retired individuals and younger families in it. Interviews were conducted with the majority of these residents and people working within the area.

### **7.3 Leisure activities**

Few leisure activities were observed taking place within the 1 km zone. There was 1 public house and a number of footpaths; however, nobody was observed using the latter.

### **7.4 Commercial activities**

There were 2 working farms and 2 other farms, which had been converted to other uses. Most of the survey area was used either for agriculture (arable and sheep) or grazing land for horses. The area also contained 2 businesses and a public house.

## **7.5 Occupancy times**

Table 47 presents the indoor, outdoor and total occupancy data for adults and children, and includes distances from the perimeter fence for these observations. No observations were obtained for children younger than 2 years old. An analysis of the data by distance zones and occupancy times is shown in Table 48. No occupancy was noted within 0.25 km of the perimeter fence.

### **Occupancy for within 0.25 – 0.5 km of the site perimeter fence**

Occupancy data were obtained for 16 individuals in the 0.25 to 0.5 km zone, 13 of whom were residents. The highest total occupancy was 7800 h/y.

### **Occupancy for within 0.5 – 1 km of the site perimeter fence**

Occupancy data were obtained for 56 individuals in the 0.5 to 1 km zone, 47 of whom were residents. The highest total occupancy was also 8500 h/y.

## **7.6 Gamma dose rate measurements**

Table 49 presents gamma dose rate measurements taken in the Burghfield direct radiation survey area. It should be noted that measurements have not been adjusted for natural backgrounds. Gamma dose measurements were taken at a representative selection of properties, both indoor and outdoor. The outdoor measurements, which were taken between 5 and 10 metres distant from the buildings, ranged from 0.064 to 0.073  $\mu\text{Gy}/\text{h}$ , all of which were taken over grass. The indoor measurements ranged from 0.064 to 0.092  $\mu\text{Gy}/\text{h}$ , all of which were taken in houses. Again, high readings inside properties are most likely to be caused by the natural radiation in the materials from which the buildings are constructed.

Background gamma dose rate measurements, also shown in Table 49, were taken further afield for comparison. These ranged from 0.054 to 0.061  $\mu\text{Gy}/\text{h}$ .

## 8 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 Annexes 1 and 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. 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 critical groups. Such assumptions will depend on the assessment in question but some initial observations are provided here as a starting point for those undertaking assessments. The most extensive combinations of pathways for adult dose assessment are shown in Table 50. These are based on information in Annex 1 and are derived irrespective of the magnitude of the rate observed for each pathway.

Combinations of pathways at critical group rates may be achieved by considering the data in Annexes 1 and 2. Although critical group rates are not given in the Annexes, the rates for individuals making up the groups are shown emboldened. Possible combinations of pathways and their associated critical group rates are therefore apparent.



## 9 CONCLUSIONS AND RECOMMENDATIONS

### 9.1 Survey findings

During the survey, team members interviewed a large number of farmers, allotment tenants and amateur gardeners in the survey area. In addition beekeepers, people collecting wild/free foods and wild fungi, the manager of a commercial crayfish business and people pursuing water related activities were identified and interviewed.

Exposure pathways were investigated for in excess of 1000 individuals. The survey found that pathways relating to each of the 3 potential sources of exposure from the Aldermaston and Burghfield sites were present:

- Discharges of liquid radioactive waste (Aldermaston site only) to the River Thames at Pangbourne, to the Foudry Brook (via the Silchester Sewage Treatment Plant) and to the Aldermaston Stream
- Discharges of gaseous radioactive waste to the atmosphere
- Direct radiation emitted from both sites

The adult critical group rates for each aquatic (freshwater) pathways were:

- 1.2 kg/y for fish
- 1.2 kg/y for crustaceans

The aquatic species consumed were rainbow trout and signal crayfish. Note that the trout were obtained from a lake unaffected by liquid discharges from Aldermaston.

For bank side occupancy, the critical group rate was 320 h/y on the River Kennet and Kennet and Avon Canal.

The same rate is recommended for bank side occupancy on the River Thames at Pangbourne, even though there were no observations during the survey.

For handling commercial fishing gear, the critical group rate was 320 h/y in the River Kennet and Kennet and Avon Canal.

For water-based activities (canoeing and boating), the critical group rate was 450 h/y on the Thames at Pangbourne (downstream of the discharge point).

The adult critical group rates for each locally grown/obtained terrestrial food group (considered in isolation of other groups) were:

- 45 kg/y for green vegetables
- 44 kg/y for other vegetables
- 43 kg/y for root vegetables
- 72 kg/y for potatoes
- 39 kg/y for domestic fruit
- 230 l/y for milk
- 42 kg/y for cattle meat
- 21 kg/y for pig meat
- 14 kg/y for sheep meat
- 26 kg/y for poultry
- 21 kg/y for eggs
- 3.5 kg/y for wild/free foods
- 3.2 kg/y for rabbits/hares
- 9.9 kg/y for honey
- 3.0 kg/y for wild fungi
- 3.4 kg/y for venison

No consumption of local cereals was identified. Consumption of foodstuffs by children was also recorded.

For occupancy times of members of the public within 1 km of the Aldermaston site perimeter, the highest rates (indoors plus outdoors) were:

- 8700 h/y for 0 to 0.25 km zone
- 8700 h/y for 0.25 to 0.5 km zone
- 8700 h/y for 0.5 to 1.0 km zone

For occupancy times of members of the public within 1 km of the Burghfield site perimeter, the highest rates (indoors plus outdoors) were:

- 7800 h/y for 0.25 to 0.5 km zone
- 8500 h/y for 0.5 to 1.0 km zone

No occupancy was noted within 0 km to 0.25 km of the Burghfield site perimeter.

## **9.2 Comparisons with previous surveys**

No previous aquatic, terrestrial, or direct radiation surveys have been conducted at Burghfield, and no previous direct radiation survey has been conducted around Aldermaston by CEFAS. Comparisons are therefore limited to previous aquatic and terrestrial surveys at Aldermaston.

For consumption of aquatic foods, the critical group rates for the Aldermaston area were slightly higher in 2002 than during the 1997 terrestrial habits survey. The 2002 consumption rate for rainbow trout was 1.2 kg/y by 2 consumers (maximum rate 1.2 kg/y) and the consumption rate for crayfish was also 1.2 kg/y by 2 consumers (maximum rate 1.2 kg/y). These compare with the 1997 consumption rates for rainbow trout of 0.63 kg/y by 7 consumers (maximum rate 0.80 kg/y) and for crayfish of 0.80 kg/y by 2 consumers (maximum rate 0.80 kg/y).

In 2002, two commercial crayfish fishermen had a mean occupancy time on the banks of the River Kennet and Kennet and Avon Canal of 320 h/y. They also handled commercial fishing gear (traps) for the same duration. No observations of these activities at this location have been previously noted by CEFAS.

The 1991 aquatic habits survey identified a mean bank side occupancy rate of 360 h/y by 6 individuals (maximum time of 365 h/y) on the Pangbourne section of the River Thames downstream of the discharge point. The 2002 survey did not record any significant bank side occupancy at this location. However, it is considered prudent to assume that these activities are represented, so the same occupancy time as for the River Kennet is recommended.

A mean occupancy time for 15 water sport enthusiasts, spending time on the River Thames below the Pangbourne discharge point, was 450 h/y in 2002. This pathway has not previously been investigated by CEFAS.

For terrestrial food groups, the critical group consumption rates in the 2002 survey are tabulated below together with those of the 1997 survey for ease of comparison:

	1997	2002
	(kg/y)	(kg/y)
• Green vegetables	45	45
• Other vegetables	45	44
• Root vegetables	96	43
• Potatoes	111	72
• Domestic fruit	47	39
• Milk	270	230
• Cattle meat	84	42
• Pig meat	6.8	21
• Sheep meat	6.8	14
• Poultry	8.5	26

• Eggs	17	21
• Wild/free foods	3.2	3.5
• Rabbits/hares	8.0	3.2
• Honey	11	9.9
• Wild fungi	10	3.0
• Venison	0.3	3.4

Food groups consumed at noticeably higher rates in 2002 compared with 1997 were pig meat, sheep meat, poultry and venison. Food groups consumed at noticeably reduced rates in 2002 compared with 1997 were root vegetables, cattle meat, rabbits/hares and wild fungi.

### **9.3 Recommendations for environmental monitoring**

The 2001 monitoring programmes operated by the Environment Agency and the Food Standards Agency included the following samples and measurements (EA, 2002 and FSA and SEPA, 2002):

#### Aquatic surveillance

- Pike (from the River Thames at Newbridge as a background reference sample)
- Pike (from the River Thames at the outfall at Pangbourne, Staines, Shepperton and Teddington)
- Flounder (from the River Thames at Beckton)
- *Nuphar lutea* (from the River Thames at Newbridge as a background reference sample)
- *Nuphar lutea* (from the River Thames at Staines)
- Clay (from the River Thames at the outfall at Pangbourne)
- Sediment (from the River Thames at the outfall at Pangbourne, Mapledurham, the Aldermaston Stream, the River Kennet at Reading, a stream at Spring Lane and a stream draining south)

- Water (from the River Thames at the outfall at Pangbourne, Mapledurham, the Aldermaston Stream, the River Kennet at Reading and a stream at Spring Lane)
- Gamma dose rate measurements (River Thames bank side locations at Pangbourne and Mapledurham over grass/silt)

#### Terrestrial surveillance

- Milk – near farms
- Apples
- Carrots
- Honey
- Plums
- Potatoes
- Rabbits
- Runner beans
- Spinach
- Wheat
- Soil (from Burnham's plantation, Park Farm and Aldermaston Park (north))
- Grass/herbage (from Burnham's plantation, Park Farm and Aldermaston Park (north))

For the aquatic monitoring programme, consideration should be given to adding the following:

- Signal crayfish from the River Kennet downstream of the confluence with the Aldermaston Stream
- Digested sludge from Basingstoke Sewage Treatment Plant
- Fruit or vegetables grown using water from the Aldermaston Stream

For the terrestrial monitoring programme, consideration could be given to adding pigeons, which have access to both sites and are shot and consumed by adults.

## **10 ACKNOWLEDGEMENTS**

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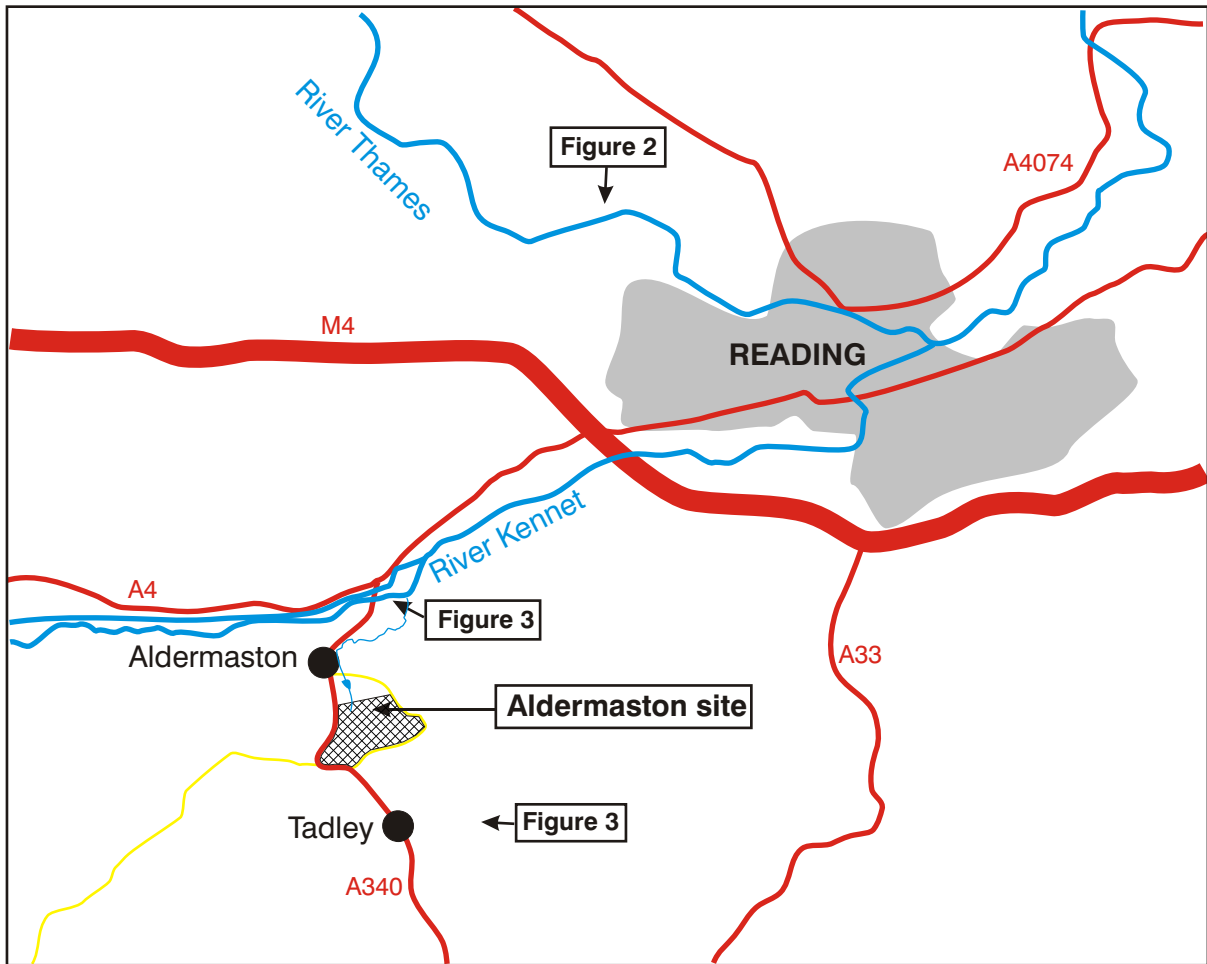


Figure 1. The aquatic habits survey locations in the Aldermaston area.

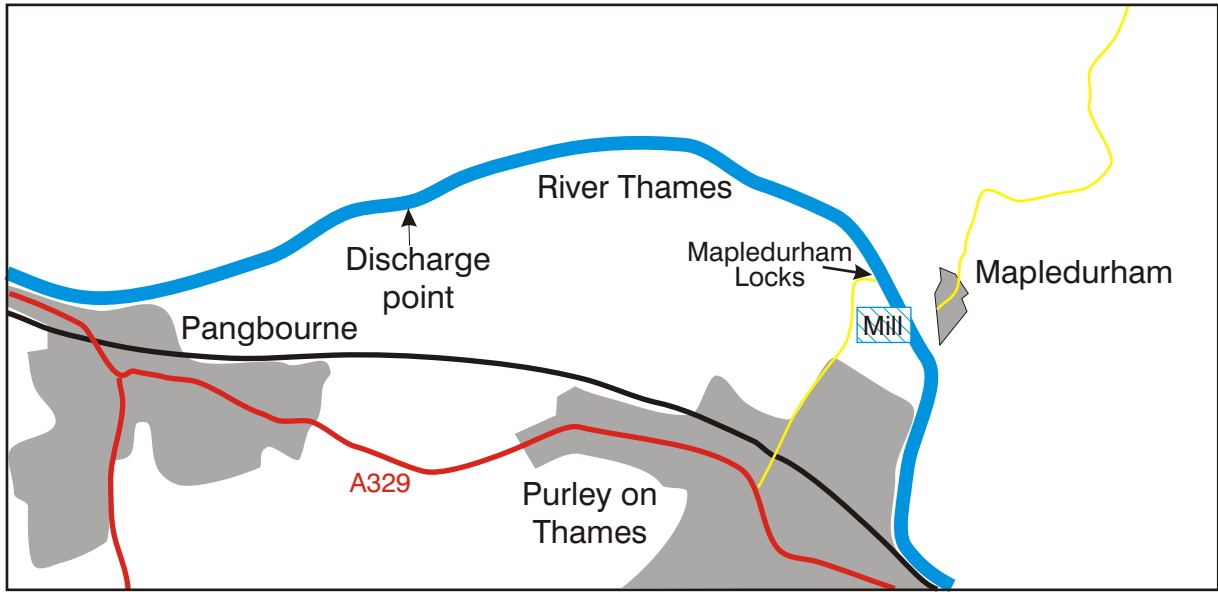


Figure 2. The Pangbourne section of the River Thames.

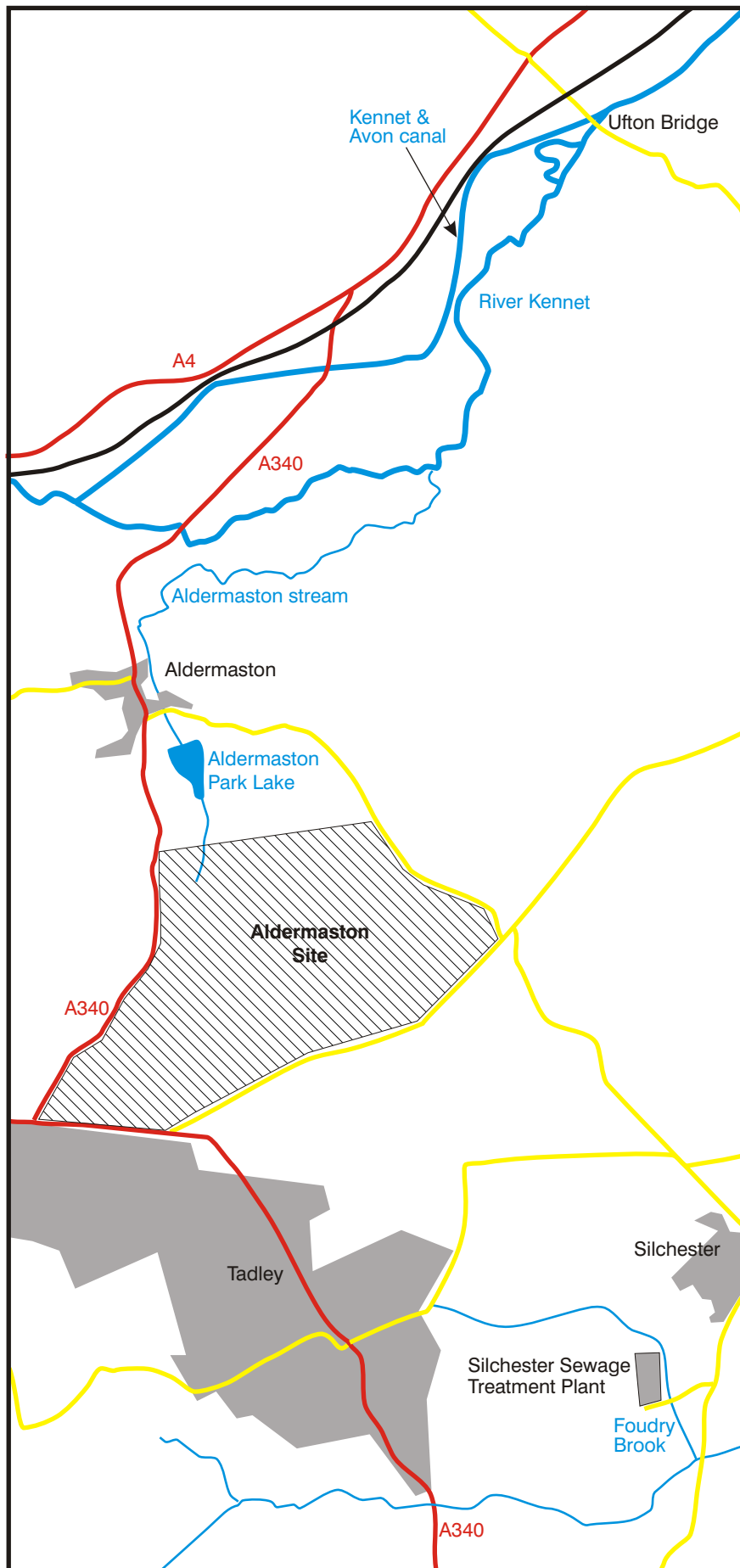


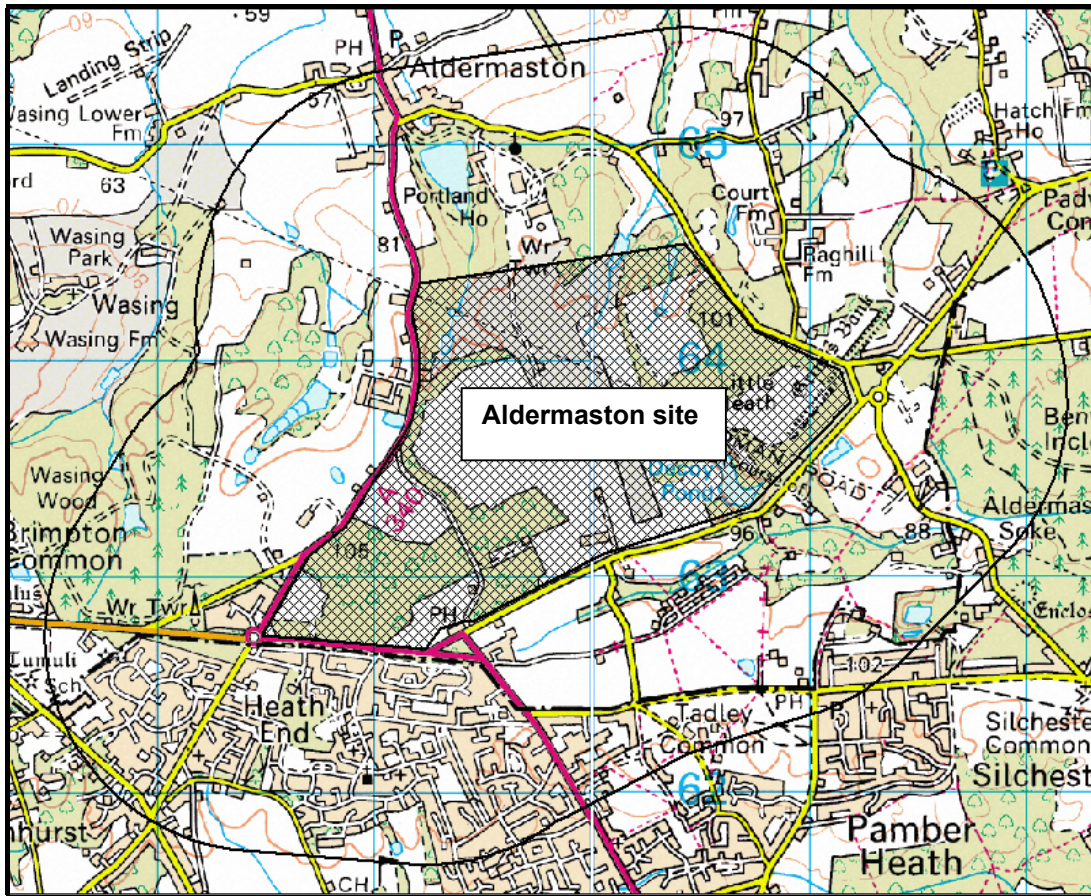
Figure 3. The Silchester Sewage Treatment Plant, the Foudry Brook and the Aldermaston stream, related waterways.



Figure 4. The Aldermaston/Burghfield terrestrial survey area

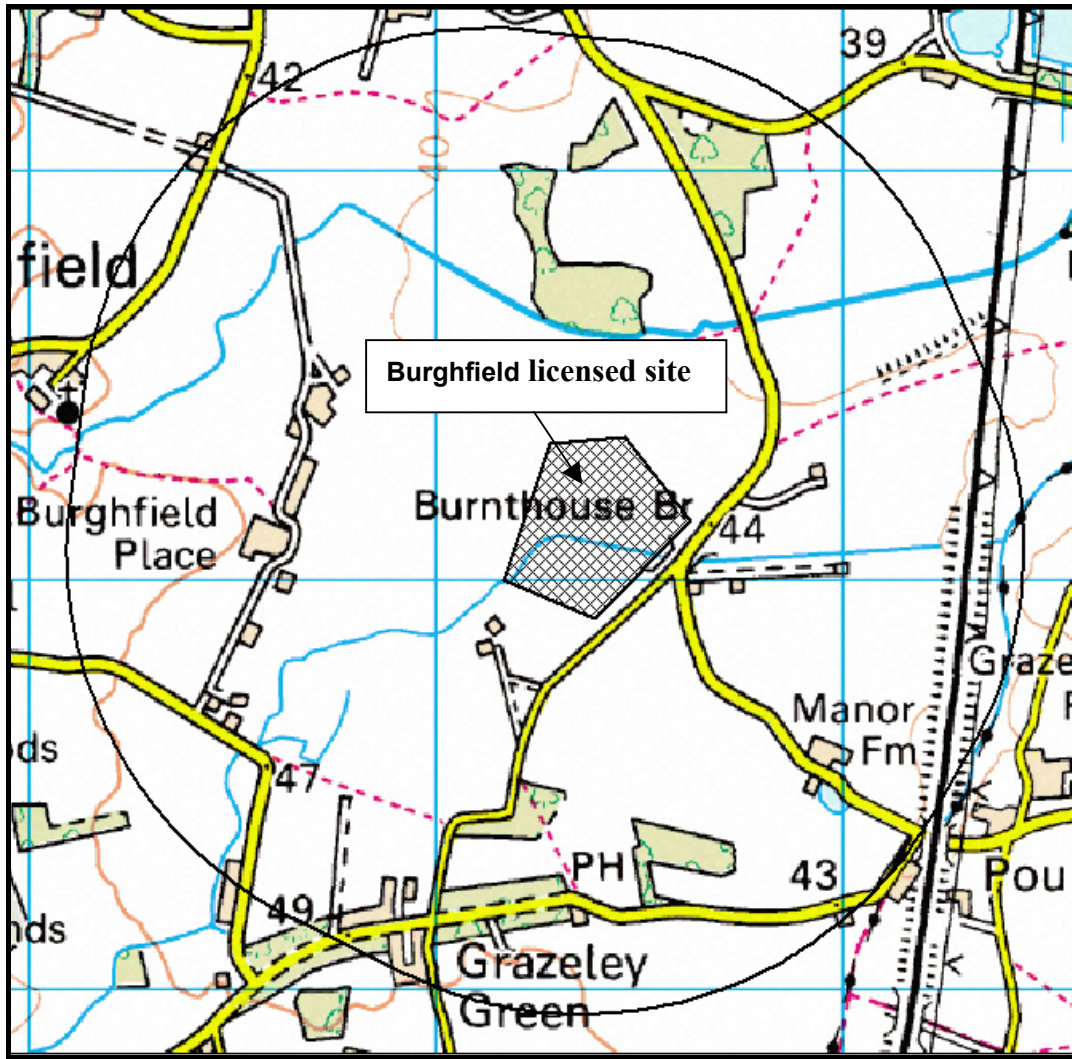
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Key ★ = allotment sites ● = centres of the sites



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Figure 5. The Aldermaston direct radiation survey area.



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Figure 6. The Burghfield direct radiation survey area.



**Table 1. Typical food groups used in habits surveys**

<b>Green vegetables</b>	Globe artichoke, asparagus, broccoli, brussel sprout, cabbage, calabrese, cauliflower, chard, courgettes, cucumber, gherkin, herbs, kale, leaf beet, lettuce, marrow, spinach
<b>Other vegetables</b>	Aubergine, broad bean, chilli pepper, french bean, mangetout, pea, pepper, runner bean, sweetcorn, tomato
<b>Root vegetables</b>	Jerusalem artichoke, beetroot, carrot, celeriac, celery, chicory, fennel, garlic, kohlrabi, leek, onion, parsnip, radish, shallot, spring onion, swede, turnip
<b>Potato</b>	
<b>Domestic fruit</b>	Apple, apricot, blackberry, blackcurrant, boysenberry, cherry, damson, fig, gooseberry, grapes, greengages, huckleberry, loganberry, melon, nectarines, peach, pear, plum, pumpkin, raspberry, redcurrants, rhubarb, rowanberry, strawberry, tayberry, whitecurrant
<b>Milk</b>	Milk, butter, cream, cheese, yoghurt, goats milk
<b>Cattle meat †</b>	
<b>Pig meat †</b>	
<b>Sheep meat †</b>	
<b>Poultry</b>	Chicken, duck, goose, grouse, guinea fowl, partridge, pheasant, pigeon, snipe, turkey, woodcock
<b>Eggs</b>	Chicken egg, duck egg, goose egg
<b>Wild/free foods</b>	Blackberry, blackcurrant, chestnut, crab apple, damson, dandelion root, elderberry, nettle, raspberry, rowanberry, samphire, sloe, strawberry, watercress, wild apple
<b>Honey</b>	
<b>Wild Fungi</b>	Mushrooms
<b>Rabbits/Hare</b>	Hare, rabbit
<b>Venison †</b>	
<b>Fish (sea)</b>	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*, cuttlefish*, rays, turbot, whitebait, whiting
<b>Fish (fresh water)</b>	Brown trout, rainbow trout, perch, pike, salmon (river), eels
<b>Crustaceans</b>	Brown crab, spider crab, crawfish, lobster, <i>Nephrops</i> , squat lobster, prawn, shrimp
<b>Molluscs</b>	Cockles, limpets, mussels, oysters, queen scallop, razor shell, whelks, winkles

**Notes:**

\* Although squid and cuttlefish are molluscs, radiologically they are more akin to fish.

† Including offal.

**Table 2. Adult consumption rates of freshwater fish  
in the Aldermaston/Burghfield area (kg/y)**

Observation number	Rainbow trout
<b>947</b>	<b>1.2</b>
<b>949</b>	<b>1.2</b>

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of freshwater fish

based on the 2 highest adult consumers is 1.2 kg/y

The observed 97.5 percentile rate based on 2 observations is 1.2 kg/y

**Table 3. Adult consumption rates of freshwater crustaceans  
in the Aldermaston/Burghfield area (kg/y)**

Observation number	Crayfish
<b>525</b>	<b>1.2</b>
<b>526</b>	<b>1.2</b>

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of freshwater crustaceans

based on the 2 highest adult consumers is 1.2 kg/y

The observed 97.5 percentile rate based on 2 observations is 1.2 kg/y

**Table 4. Children's consumption rates of freshwater fish in the Aldermaston/Burghfield area (kg/y)**

**15 year old age group**

Observation number	Age	Rainbow Trout
<b>950</b>	<b>15</b>	<b>1.2</b>
<b>951</b>	<b>13</b>	<b>1.2</b>

**Notes**

Emboldened observations are the critical group consumers  
 The critical group consumption rate of freshwater fish based on the 2 highest 15 year old age group consumers is 1.2 kg/y  
 The observed 97.5 percentile rate based on 2 observations is 1.2 kg/y

**10 year old age group**

Observation number	Age	Rainbow Trout
<b>952</b>	<b>11</b>	<b>1.2</b>

**Notes**

Emboldened observations are the critical group consumers  
 The critical group consumption rate of freshwater fish based on the only 10 year old age group consumer is 1.2 kg/y  
 The observed 97.5 percentile rate is not applicable for 1 observation

**Table 5. Children's consumption rates of freshwater crustaceans in the Aldermaston/Burghfield area (kg/y)**

**15 year old age group**

Observation number	Age	Crayfish
<b>527</b>	<b>13</b>	<b>1.2</b>

**Notes**

Emboldened observations are the critical group consumers  
 The critical group consumption rate of freshwater crustaceans based on the only 15 year old age group consumer is 1.2 kg/y  
 The observed 97.5 percentile rate is not applicable for 1 observation

**10 year old age group**

Observation number	Age	Crayfish
<b>528</b>	<b>11</b>	<b>1.2</b>

**Notes**

Emboldened observations are the critical group consumers  
 The critical group consumption rate of freshwater crustaceans based on the only 10 year old age group consumer is 1.2 kg/y  
 The observed 97.5 percentile rate is not applicable for 1 observation

**Table 6. Summary of adult's consumption rates in the Aldermaston/Burghfield area (kg/y or l/y)**

Food group	Number of observations	No. higher rate consumers	Observed maximum critical group consumption rate	Observed minimum critical group consumption rate	Observed mean critical group consumption rate	Observed 97.5 %ile consumption rate	Generic mean consumption rate	Generic 97.5 %ile consumption rate
Green vegetables	227	46	78.5	27.5	45.4	55.2	15.0	45.0
Other vegetables	243	61	92.5	30.9	43.9	61.2	20.0	50.0
Root vegetables	230	63	84.7	30.0	43.0	56.9	10.0	40.0
Potatoes	218	79	121.9	41.0	72.1	112.5	50.0	120.0
Domestic fruit	209	18	73.6	24.6	38.9	42.6	20.0	75.0
Milk	23	16	365.0	138.3	233.0	361.2	95.0	240.0
Cattle meat	12	10	52.0	29.5	41.5	52.0	15.0	45.0
Pig meat	4	4	29.5	12.6	21.1	29.5	15.0	40.0
Sheep meat	10	9	22.6	11.3	13.8	22.6	8.0	25.0
Poultry	42	4	27.7	20.5	25.9	27.7	10.0	30.0
Eggs	51	25	34.3	13.3	20.8	31.8	8.5	25.0
Wild/free foods	43	15	6.2	2.3	3.5	6.2	7.0	25.0
Rabbits/hares	7	3	3.8	2.9	3.2	3.7	6.0	15.0
Honey	13	4	23.6	2.7	9.9	18.8	2.5	9.5
Wild fungi	5	3	4.5	2.3	3.0	4.3	3.0	10.0
Venison	5	5	4.5	2.5	3.4	4.4	ND	ND
Fish (fr.)	2	2	1.2	1.2	1.2	1.2	15.0	40.0
Crustaceans (fr.)	2	2	1.2	1.2	1.2	1.2	ND	ND

ND = not determined

NC = not consumed

fr. = freshwater

**Table 7. Summary of 15 year old children's consumption rates in the Aldermaston/Burghfield area (kg/y or l/y)**

Food group	Number of observations	No. higher rate consumers	Observed maximum critical group consumption rate	Observed minimum critical group consumption rate	Observed mean critical group consumption rate	Observed 97.5 %ile consumption rate	Generic mean consumption rate	Generic 97.5 %ile consumption rate
Green vegetables	11	9	8.9	4.0	6.4	8.9	9.0	25.0
Other vegetables	11	4	29.8	18.5	24.2	29.8	10.0	30.0
Root vegetables	10	3	19.6	8.0	15.8	19.6	7.5	20.0
Potatoes	9	6	27.3	11.3	21.5	27.3	60.0	130.0
Domestic fruit	11	9	10.8	3.8	7.2	10.8	15.0	50.0
Milk	3	3	260.7	138.3	219.9	260.7	110.0	260.0
Cattle meat	NC	NC	NC	NC	NC	NC	15.0	35.0
Pig meat	2	2	12.7	12.7	12.7	12.7	10.0	30.0
Sheep meat	NC	NC	NC	NC	NC	NC	5.5	15.0
Poultry	NC	NC	NC	NC	NC	NC	6.5	20.0
Eggs	5	4	7.1	4.3	5.7	7.1	7.0	25.0
Wild/free foods	NC	NC	NC	NC	NC	NC	3.0	13.0
Rabbits/hares	NC	NC	NC	NC	NC	NC	ND	ND
Honey	2	2	0.2	0.2	0.2	0.2	2.0	5.0
Wild fungi	NC	NC	NC	NC	NC	NC	2.0	5.5
Venison	NC	NC	NC	NC	NC	NC	ND	ND
Fish (fr.)	2	2	1.2	1.2	1.2	1.2	6.5	20.0
Crustaceans (fr.)	1	1	1.2	1.2	1.2	NA	ND	ND

ND = not determined

NC = not consumed

NA = not applicable

fr. = freshwater

**Table 8. Summary of 10 year old children's consumption rates in the Aldermaston/Burghfield area (kg/y or l/y)**

Food group	Number of observations	No. higher rate consumers	Observed maximum critical group consumption rate	Observed minimum critical group consumption rate	Observed mean critical group consumption rate	Observed 97.5 %ile consumption rate	Generic mean consumption rate	Generic 97.5 %ile consumption rate
Green vegetables	16	4	45.0	24.5	34.8	45.0	6.0	20.0
Other vegetables	16	9	34.4	11.8	19.1	34.4	8.0	25.0
Root vegetables	16	4	37.4	15.4	26.4	37.4	6.0	20.0
Potatoes	16	2	98.3	98.3	98.3	98.3	45.0	85.0
Domestic fruit	15	11	9.3	3.4	6.0	9.3	15.0	50.0
Milk	4	3	260.7	103.4	155.9	248.9	110.0	240.0
Cattle meat	2	2	5.9	5.9	5.9	5.9	15.0	30.0
Pig meat	NC	NC	NC	NC	NC	NC	8.5	25.0
Sheep meat	NC	NC	NC	NC	NC	NC	4.0	10.0
Poultry	2	2	0.4	0.4	0.4	0.4	5.5	15.0
Eggs	1	1	5.1	5.1	5.1	NA	6.5	20.0
Wild/free foods	NC	NC	NC	NC	NC	NC	3.0	11.0
Rabbits/hares	2	2	2.9	2.9	2.9	2.9	ND	ND
Honey	NC	NC	NC	NC	NC	NC	2.0	7.5
Wild fungi	2	2	2.3	2.3	2.3	2.3	1.5	4.5
Venison	NC	NC	NC	NC	NC	NC	ND	ND
Fish (fr.)	1	1	1.2	1.2	1.2	NA	ND	ND
Crustaceans (fr.)	1	1	1.2	1.2	1.2	NA	ND	ND

ND = not determined

NC = not consumed

NA = not applicable

fr. = freshwater

**Table 9. Summary of 5 year old children's consumption rates in the Aldermaston/Burghfield area (kg/y or l/y)**

Food group	Number of observations	No. higher rate consumers	Observed maximum critical group consumption rate	Observed minimum critical group consumption rate	Observed mean critical group consumption rate	Observed 97.5 %ile consumption rate	Generic mean consumption rate	Generic 97.5 %ile consumption rate
Green vegetables	5	3	5.8	2.5	4.1	5.6	ND	ND
Other vegetables	8	3	22.1	13.0	16.1	20.6	ND	ND
Root vegetables	7	4	10.1	3.7	5.6	9.3	ND	ND
Potatoes	7	5	16.4	6.6	12.5	16.4	ND	ND
Domestic fruit	8	5	6.4	3.1	4.7	6.3	ND	ND
Milk	1	1	69.1	69.1	69.1	NA	ND	ND
Cattle meat	NC	NC	NC	NC	NC	NC	ND	ND
Pig meat	NC	NC	NC	NC	NC	NC	ND	ND
Sheep meat	2	2	5.7	5.7	5.7	5.7	ND	ND
Poultry	NC	NC	NC	NC	NC	NC	ND	ND
Eggs	3	3	3.6	2.5	3.2	3.6	ND	ND
Wild/free foods	2	2	1.8	1.8	1.8	1.8	ND	ND
Rabbits/hares	NC	NC	NC	NC	NC	NC	ND	ND
Honey	NC	NC	NC	NC	NC	NC	ND	ND
Wild fungi	NC	NC	NC	NC	NC	NC	ND	ND
Venison	2	2	0.9	0.9	0.9	0.9	ND	ND

ND = not determined  
 NC = not consumed  
 NA = not applicable

**Table 10. Summary of 1 year old children's consumption rates in the Aldermaston/Burghfield area (kg/y or l/y)**

Food group	Number of observations	No. higher rate consumers	Observed maximum critical group consumption rate	Observed minimum critical group consumption rate	Observed mean critical group consumption rate	Observed 97.5 %ile consumption rate	Generic mean consumption rate	Generic 97.5 %ile consumption rate
Green vegetables	1	1	0.4	0.4	0.4	NA	ND	ND
Other vegetables	1	1	22.1	22.1	22.1	NA	ND	ND
Root vegetables	NC	NC	NC	NC	NC	NC	ND	ND
Potatoes	1	1	5.0	5.0	5.0	NA	ND	ND
Domestic fruit	1	1	6.4	6.4	6.4	NA	ND	ND
Milk	NC	NC	NC	NC	NC	NC	ND	ND
Cattle meat	NC	NC	NC	NC	NC	NC	ND	ND
Pig meat	NC	NC	NC	NC	NC	NC	ND	ND
Sheep meat	NC	NC	NC	NC	NC	NC	ND	ND
Poultry	NC	NC	NC	NC	NC	NC	ND	ND
Eggs	NC	NC	NC	NC	NC	NC	ND	ND
Wild/free foods	NC	NC	NC	NC	NC	NC	ND	ND
Rabbits/hares	NC	NC	NC	NC	NC	NC	ND	ND
Honey	NC	NC	NC	NC	NC	NC	ND	ND
Wild fungi	NC	NC	NC	NC	NC	NC	ND	ND
Venison	NC	NC	NC	NC	NC	NC	ND	ND

ND = not determined  
 NC = not consumed  
 NA = not applicable





**Table 11. Adult consumption rates of green vegetables in the Aldermaston/Burghfield area (kg/y)**

Observation number	Artichoke	Asparagus	Broccoli	Brussel sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgettes	Cucumber	Herbs	Kale	Lettuce	Marrow	Rocket	Spinach	Squash	Total
410-411				2.8	7.2								0.7	0.8				11.5
397-398				6.8									4.5					11.3
430-431				2.7	3.7					3.4				1.4				11.1
337-344					9.6				0.1				0.8			0.4		10.8
461-462					5.1		4.1	1.5										10.7
257-258					5.3			4.0	0.5				0.9					10.7
501-510					5.1								2.0	2.7				9.8
188-189				2.7	1.8	2.2	0.8						1.2	0.5				9.4
186-187			4.5		4.4													8.9
192			4.5		4.4													8.9
201-202					7.7								1.1					8.8
414-423					2.7		3.4			1.4			0.9					8.4
861									2.8					5.4				8.2
333-334	0.3				2.9								1.7			3.2		8.1
15				2.7					0.2				0.5		3.0	1.0		7.4
262-263			1.0	0.5	2.3								3.5					7.3
245-246			2.9	3.8													0.3	7.0
441														6.8				6.8
442														6.8				6.8
3			2.5										2.0			1.7		6.2
12									0.2				4.0			1.7		5.9
353-354			1.5	1.6		1.7			0.7									5.5
495-496													5.4					5.4
552-554			2.7				1.3						1.1					5.1
497-498													4.5					4.5
16				2.7					0.2				0.5			1.0		4.4
308-310										0.9			1.7	1.7				4.3
520-522													4.0					4.0
598-599										3.4			0.6					4.0
250-252					3.0								1.0					4.0
247-248					1.6				0.2				2.3					4.0
264													3.6					3.6
10,11		0.3							0.3	1.7			1.0					3.3
282-283		1.8												1.4				3.2
220-222													3.0					3.0
992-993													1.8			0.7		2.5
997-998													2.3					2.3
253-256					1.7				0.2				0.2					2.2
350-352									0.1				1.2	0.5				1.9

**Table 11. Adult consumption rates of green vegetables in the Aldermaston/Burghfield area (kg/y)**

Observation number	Artichoke	Asparagus	Broccoli	Brussel sprout	Cabbage	Calabrese	Cauliflower	Chard	Courgettes	Cucumber	Herbs	Kale	Lettuce	Marrow	Rocket	Spinach	Squash	Total
539-540									1.8									1.8
194,197					0.5					0.8	0.1							1.5
206-207		1.1																1.1
29-30									0.2		0.2							0.5
529-530											0.1						0.3	0.4
236-240									0.3									0.3
234-235									0.2									0.2

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of green vegetables based on the 46 highest adult consumers is 45.4 kg/y

The observed 97.5 percentile rate based on 227 observations is 55.2 kg/y

Table 12. Adult consumption rates of other vegetables in the Aldermaston/Burghfield area (kg/y)

Observation number	Broad bean	French bean	Mangetout	Pea	Pepper	Runner bean	Sweetcorn	Tomato	Total
397-398	34.1	4.1		13.5		40.8			92.5
488		16.2		6.8		40.8		9.0	72.8
440	21.8					16.3		28.8	67.0
407-408	14.3			4.1		36.7	1.0	5.4	61.5
345-346	16.4	6.5				29.4		9.0	61.2
195-196	25.6		4.3			25.5		3.4	58.7
495-496		2.2		5.4		32.6		10.8	51.0
520-522	13.7					27.2		9.6	50.4
8,9	9.1			6.8		32.6			48.5
430-431	16.4					16.3		15.3	48.0
232-233	10.8		5.4	5.3		18.0		7.1	46.6
489-494	30.3	1.5				11.3		3.0	46.2
523-524	6.8			6.8		20.4		10.8	44.8
1,2	12.1	4.8	3.0			18.1		4.3	42.4
426-427	8.2			4.1		24.5			36.7
347-349	9.1					27.2			36.3
451-458	8.2	6.5		2.7		16.3	0.7		34.4
472-475	2.3	2.3				22.7		5.7	32.9
234-235	18.2			5.2		6.8	0.6	1.8	32.6
4,5	13.7					13.1		5.0	31.7
10,11	4.6	1.8		2.3	0.2	13.6		9.0	31.4
13,14	8.7	5.2		4.3		13.1			31.3
307	3.6			2.3		12.2	2.9	10.2	31.2
188-189	13.7					14.3		3.2	31.2
22-23	6.1			3.0		18.4		3.4	30.9
250-252	17.1	5.0				8.2			30.2
461-462	13.1					13.1	3.7		29.8
414-423	6.8			0.7		16.3		6.0	29.8
282-283	1.1			0.9	0.2	6.8	3.5	16.3	28.8
395-396	3.4		3.4			20.4	1.4		28.5
463	21.8					6.1			28.0
350-352						20.4		6.5	26.9
245-246	6.6	0.5		3.2		14.7	1.2		26.2
385-388						21.8		4.3	26.1
24-25	13.1	2.6						7.9	23.6
997-998		8.1				15.3			23.4
262-263	2.3	2.5	1.5	0.8		2.5	13.8		23.4
435-437	5.5					16.3		1.5	23.3
357-358	14.6	4.3	2.2					2.2	23.2
486-487					2.3	6.8		13.6	22.7
529-530				0.5		2.5	1.2	18.0	22.2
399-406	8.2	1.6				12.2			22.1
293-294	3.3	1.4	2.2	1.3		6.9	1.2	5.8	22.0
296-299	3.3	1.4	2.2	1.3		6.9	1.2	5.8	22.0
391-394						20.4			20.4
501-510	5.1					5.1		9.0	19.2
211		0.5		5.9		2.6		10.2	19.1
259-261		0.5		5.9		2.6		10.2	19.1
286-287						11.3		7.2	18.5
353-354	9.1	4.3				4.1	1.0		18.5
186-187						4.1		14.4	18.5
192						4.1		14.4	18.5
337-344	7.2		1.2			7.1		2.0	17.5
483	3.2					13.6			16.8

**Table 12. Adult consumption rates of other vegetables in the Aldermaston/Burghfield area (kg/y)**

Observation number	Broad bean	French bean	Mangetout	Pea	Pepper	Runner bean	Sweetcorn	Tomato	Total
6,7						8.2		8.1	16.3
428-429		9.7	4.1				2.3		16.1
247-248	8.2			2.3				5.1	15.5
12	5.6			1.2		5.1		3.6	15.5
464-470	6.5					7.8		0.8	15.0
410-411	3.3			0.9		8.4	0.2	1.2	14.1
447-448	0.9			1.1		6.8		4.5	13.4
280-281			0.5	0.5		12.2			13.1
333-334	2.6		0.6	1.9		5.2	2.7		13.1
264	1.0					1.0		10.8	12.8
484-485	4.5		2.3		1.1	4.5			12.5
206-207						7.7		4.5	12.2
539-540	2.0			1.5	0.2	3.0		5.4	12.1
374-382	2.5			2.5		4.9		2.0	11.8
3	3.0	1.2	0.8			4.5		1.1	10.6
438-439		3.2		0.9		3.4	2.8		10.3
257-258	2.8	7.2							10.0
236-240						9.8			9.8
331-332	3.6	2.9						2.7	9.1
369-371	3.0	1.1				4.5			8.7
598-599						6.1		1.8	7.9
432-434							4.1	3.6	7.7
277								7.2	7.2
497-498	1.1			0.2		3.4	1.1		5.9
284-285	5.5								5.5
308-310	0.6					1.4		3.4	5.3
220-222	4.6								4.6
441-442								4.5	4.5
879,885						2.0	0.7	1.8	4.5
29-30		0.2					3.5	0.5	4.1
992-993	1.1					2.9			4.0
253-256		0.1					3.5		3.6
201-202						3.4			3.4
861	1.4	1.8							3.2
15-16	0.4							2.7	3.1
194,197						1.3		0.9	2.2
534-535						1.1			1.1

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of other vegetables based on the 61 highest adult consumers is 43.9 kg/y

The observed 97.5 percentile rate based on 243 observations is 61.2 kg/y

**Table 13. Adult consumption rates of root vegetables in the Aldermaston/Burghfield area (kg/y)**

Observation number	Artichoke	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
483		11.3	11.3					22.7	18.0	9.0	4.5	8.0				84.7
426-427		4.1	8.1					16.2	16.2	3.2		14.4	1.8	12.2		76.2
463		16.2	10.8					10.8	21.6			11.5				70.9
488			13.5				0.6		27.0			28.8				69.9
428-429		4.1	4.1					8.1	29.2			11.5				56.9
430-431		2.7	5.4					20.0	10.8	4.3		13.4				56.7
523-524			13.5		4.1			16.9	5.4	10.8		2.4	0.8			53.8
489-494		7.5	13.1						6.0	4.5		5.3		17.0		53.5
369-371		7.6	3.8					5.3	15.1	8.5					7.6	47.8
232-233		5.3	10.7				1.6	10.7	8.6	4.3		1.9	0.7			43.7
484-485		2.3	4.5			1.1		17.0	6.8	6.8	2.3		2.3			43.1
397-398		3.4	3.4			1.7			17.6		1.4	4.8		10.2		42.3
262-263			32.4						2.2	2.5	0.5					37.6
451-458		1.4	2.7					8.1	4.3	3.2		3.8		12.2	1.6	37.4
1,2		6.0	6.0						16.8	2.4		4.3				35.5
13-14			8.6					6.5	12.1	5.2		1.5	0.4			34.3
399-406		3.0	5.1					12.2	4.9	5.7		2.2	1.4			34.3
347-349		9.0						9.0				16.0				34.0
331-332		8.9						12.5	5.7	2.9		3.8				33.7
22-23			6.8				1.5	6.1	10.8	4.9		3.6				33.6
407-408		2.0	2.0					10.1	6.5	4.1		7.2	0.9			32.8
6,7									32.4							32.4
432-434		2.7	2.7				0.8	8.1	8.6	2.2		1.9			3.2	30.3
307		2.0	4.1					1.5	6.5	1.1	0.3	2.4		12.2		30.0
8,9		3.4	1.1						18.0	3.6						26.1
259-261		1.4	3.4		3.8		0.4	3.0	4.5	2.7	0.7	5.0	0.8			25.6
211		1.4	3.4		3.8		0.4	3.0	4.5	2.7	0.7	5.0	0.8			25.6
195-196		7.4	4.2						10.1		0.2	3.0				25.0
24-25		3.2	3.2						5.2	5.2		6.9				23.8
236-240		2.7	4.4					5.4	6.5	3.2		0.7				22.9

**Table 13. Adult consumption rates of root vegetables in the Aldermaston/Burghfield area (kg/y)**

Observation number	Artichoke	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
440									14.4	7.2						21.6
357-358			0.9	3.1			0.5	14.4	1.8							20.6
414-423		0.7	4.1		4.1			0.7	5.4			4.8				19.7
461-462			3.2					3.2	7.8	2.6		2.3				19.2
257-258	2.3							5.6	11.3							19.1
495-496		2.7	5.4				0.8		8.6							17.5
391-394			1.7					11.8					3.8			17.3
264		2.7	2.7											10.9		16.4
345-346								16.2								16.2
447-448			4.5						4.5	6.8						15.9
374-382		2.5						7.4	2.9			2.6				15.4
250-252			0.6				0.8	4.2	9.0							14.7
464-470		2.6	2.6					3.2	2.1	2.1		1.8				14.3
220-222			4.5						3.6		1.8	4.3				14.2
188-189		1.4	1.4					4.1	2.4	1.6				3.1		13.9
308-310		1.1	3.2						2.3					6.4		13.0
997-998			10.1						2.7							12.8
337-344		2.4					0.2			1.9	0.9			7.1		12.5
438-439				2.3			1.8	3.4	2.3	2.3						12.0
247-248									8.6			2.9				11.5
333-334		0.6							6.5		0.4	1.3		2.6		11.4
4,5		2.2						8.6								10.8
234-235		1.1	2.3						7.2							10.6
539-540								10.0								10.0
520-522								4.5	5.4							9.9
245-246		0.9	1.6					1.8	3.2	1.3		1.0				9.8
10,11		1.4	1.4						1.1	1.8		4.0				9.6
435-437			2.7						4.3	2.2						9.2
395-396			6.8					2.4								9.2
3		1.5	1.5						4.2	0.6		1.1				8.9

**Table 13. Adult consumption rates of root vegetables in the Aldermaston/Burghfield area (kg/y)**

Observation number	Artichoke	Beetroot	Carrot	Celeriac	Celery	Fennel	Garlic	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
385-388									8.6							8.6
15-16		0.4						5.0	1.7	0.5		0.5				8.0
410-411		0.5	0.5					2.3	1.5	0.9		1.6	0.2			7.5
501-510										1.5		0.8		5.1		7.4
283			6.8													6.8
472-475			6.4													6.4
186-187		1.6							4.3		0.2		0.03			6.1
192		1.6							4.3		0.2		0.03			6.1
293-294			3.4						1.8		0.6					5.8
296-299			3.4						1.8		0.6					5.8
353-354	1.8							3.4		0.3						5.5
201-202		1.1	2.7						0.9	0.5			0.1			5.3
497-498		1.1							3.4		0.6					5.1
253-256		4.5														4.5
514-519		1.5							3.0							4.5
29-30			1.1					1.1								2.3
441-442									2.3							2.3
12		1.8														1.8
552-554			1.6													1.6
194		0.5	0.5						0.5		0.0					1.4
197		0.5	0.5						0.5		0.0					1.4
992-993			0.9													0.9
879,885											0.3		0.3			0.5

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of root vegetables based on the 63 highest adult consumers is 43.0 kg/y

The observed 97.5 percentile rate based on 230 observations is 56.9 kg/y



**Table 14. Adult consumption rates of potatoes  
in the Aldermaston/Burghfield area (kg/y)**

Observation number	Potatoes
369-371	121.9
514-519	112.5
264	109.5
451-458	98.3
407-408	90.1
430-431	81.9
250-252	79.6
472-475	79.4
463	76.4
489-494	75.8
331-332	75.4
22-23	73.7
220-222	70.8
232-233	70.3
523-524	59.9
24-25	59.0
461-462	56.8
286-287	54.4
8,9,399-406	50.8
307,428,429	49.1
4,5	45.5
345-346	44.2
435-437	43.7
347-349	42.3
520-522	41.0
308-310	38.1
211,259-261,397,398	34.1
484-485	34.0
284,285,385-388	32.8
1,2	30.3
262,263,414-423	27.3
488,495,496,861,997-998	27.3
13-14	26.2
333-334	25.9
917,945	25.0
236-240	22.9
10,11	22.8
511-513	22.7
410-411	20.6
374-382	19.9
337-344	19.1
247-248	18.2
195-196	17.1
464-470	15.6
357-358	14.6
245,246,440	13.7

**Table 14. Adult consumption rates of potatoes  
in the Aldermaston/Burghfield area (kg/y)**

Observation number	Potatoes
186,187,192	13.1
234,235,257,258	11.4
483,497,498	11.3
188,189,501-510	10.2
253-256,441-442	9.1
15-16	8.2
3	7.6
353-354,438-439	6.8
992-993	6.6
529-530	5.0
29-30	4.5
194,197	2.7
293-294,296-299	2.6
534-535	1.1

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of potatoes based on the 79 highest adult consumers is 72.1 kg/y

The observed 97.5 percentile rate based on 218 observations is 112.5 kg/y

**Table 15. Adult consumption rates of domestic fruit in the Aldermaston/Burghfield area (kg/y)**

Observation number	Apple	Black-berry	Black-currant	Cherry	Damson	Goose-berry	Grapes	Green-gages	Logan-berry	Pear	Plum	Pumpkin	Rasp-berry	Red-currants	Rhubarb	Straw-berry	Tay-berry	Walnuts	White-currant	Total
463									15.9				32.6		2.3	22.8				73.6
12			17.0											4.5	13.8	16.3				51.7
461-462		1.1	9.1						12.7				8.1	12.7	1.8	5.7				51.3
484-485	11.3		2.3			2.3				4.5	6.8		9.1	2.3	4.5					43.1
407-408	9.1					3.4			2.0	6.4			9.2	4.5	2.3	4.0				40.8
440	13.6		6.8			9.1									6.8					36.3
262-263	2.5		8.5			2.5				1.0	5.0		5.0	6.8		3.0				34.3
307	6.8					1.0				4.5	9.1	1.2	2.3	2.3		5.7				32.9
345-346						4.1							12.2	4.5	2.3	7.9				31.0
438-439	22.7		1.1			2.3							1.4							27.4
331-332			3.7			3.0							10.7	1.5	1.1	4.5				24.6
428-429			8.5			6.1							2.7		6.8					24.2
245-246			10.2			0.4							1.0	8.2		2.7			0.1	22.6
511-513	7.6									6.0	6.0							2.3		21.9
195-196			6.4			4.6								5.1	5.2					21.3
447-448	9.1		2.3		2.3					0.5			3.4		2.7	0.7				20.9
501-510	5.1										5.1				9.1					19.2
483													6.8		11.3					18.1
369-371	10.6		1.1			1.1					3.0									15.9
282	4.5		1.6	0.5		2.3		0.9			0.9		4.5	0.7						15.9
1,2						4.5							0.8	0.8	9.7					15.7
10,11			2.8			2.0						0.2			4.6	5.1				14.8
206-207	3.4	1.1	2.3			2.3				1.1	3.4				0.7	0.2				14.5
257-258			1.7			1.0	5.7						1.4		1.7	2.3				13.7
347-349													9.0		4.5					13.6
177-178		0.2									12.7									12.9
866,868	10.0										2.5									12.5
232-233		2.6	1.9												7.6					12.1
337-344									1.0			4.4	5.3			1.2				11.9
350-352			2.7										2.7		0.7	2.7			2.7	11.6
283	4.5		1.6	0.5		2.3		0.9			0.9			0.7						11.3
441-442	11.3																			11.3
486-487												11.3								11.3
464-470			3.2			2.3							1.2		3.6	0.7				11.0
598-599	5.7									5.1										10.8
29	2.3	4.5	0.5										2.3			1.1				10.7



**Table 15. Adult consumption rates of domestic fruit in the Aldermaston/Burghfield area (kg/y)**

Observation number	Apple	Black-berry	Black-currant	Cherry	Damson	Goose-berry	Grapes	Green-gages	Logan-berry	Pear	Plum	Pumpkin	Rasp-berry	Red-currants	Rhubarb	Straw-berry	Tay-berry	Walnuts	White-currant	Total
449-450	1.1				1.1															2.3
220-222															1.5					1.5
234-235			1.4																	1.4
997-998															1.2					1.2
22-23															0.9					0.9
186-187																0.8				0.8
192																0.8				0.8
188-189															0.7					0.7
194,197		0.2													0.4	0.1				0.6
385-388											0.5									0.5
374-382																0.2				0.2
250-251						0.1														0.1

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of domestic fruit based on the 18 highest adult consumers is 38.9 kg/y

The observed 97.5 percentile rate based on 209 observations is 42.6 kg/y

**Table 16. Adult consumption rates of milk in the Aldermaston/Burghfield area (l/y)**

Observation number	Milk
<b>219</b>	<b>365.0</b>
<b>28</b>	<b>358.0</b>
<b>179</b>	<b>358.0</b>
<b>212</b>	<b>260.7</b>
<b>213</b>	<b>260.7</b>
<b>217</b>	<b>260.7</b>
<b>218</b>	<b>260.7</b>
<b>264</b>	<b>207.4</b>
<b>313</b>	<b>207.4</b>
<b>480</b>	<b>182.5</b>
<b>481</b>	<b>182.5</b>
<b>482</b>	<b>182.5</b>
<b>484</b>	<b>182.5</b>
<b>485</b>	<b>182.5</b>
<b>19</b>	<b>138.3</b>
<b>20</b>	<b>138.3</b>
997	118.2
998	118.2
443	103.4
444	103.4
486	103.4
487	103.4
242	69.1

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of milk based on the 16 highest adult consumers is 233.0 l/y

The observed 97.5 percentile rate based on 23 observations is 361.2 l/y

**Table 17. Adult consumption rates of cattle meat in the Aldermaston/Burghfield area (kg/y)**

Observation number	Cattle meat
<b>286</b>	<b>52.0</b>
<b>287</b>	<b>52.0</b>
<b>226</b>	<b>47.3</b>
<b>227</b>	<b>47.3</b>
<b>228</b>	<b>47.3</b>
<b>229</b>	<b>47.3</b>
<b>484</b>	<b>31.2</b>
<b>485</b>	<b>31.2</b>
<b>372</b>	<b>29.5</b>
<b>373</b>	<b>29.5</b>
443	5.9
444	5.9

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of cattle meat based on the 10 highest adult consumers is 41.5 kg/y

The observed 97.5 percentile rate based on 12 observations is 52.0 kg/y

**Table 18. Adult consumption rates of pig meat in the Aldermaston/Burghfield area (kg/y)**

Observation number	Pig meat
<b>372</b>	<b>29.5</b>
<b>373</b>	<b>29.5</b>
<b>359</b>	<b>12.7</b>
<b>360</b>	<b>12.7</b>

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of pig meat based on the 4 highest adult consumers is 21.1 kg/y

The observed 97.5 percentile rate based on 4 observations is 29.5 kg/y

**Table 19. Adult consumption rates of sheep meat in the Aldermaston/Burghfield area (kg/y)**

Observation number	Sheep meat
<b>476</b>	<b>22.6</b>
<b>477</b>	<b>22.6</b>
<b>224</b>	<b>11.3</b>
<b>225</b>	<b>11.3</b>
<b>367</b>	<b>11.3</b>
<b>472</b>	<b>11.3</b>
<b>473</b>	<b>11.3</b>
<b>474</b>	<b>11.3</b>
<b>475</b>	<b>11.3</b>
307	4.5

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of sheep meat based on the 9 highest adult consumers is 13.8 kg/y

The observed 97.5 percentile rate based on 10 observations is 22.6 kg/y

**Table 20. Adult consumption rates of poultry in the Aldermaston/Burghfield area (kg/y)**

Observation number	Duck	Goose	Partridge	Pheasant	Pigeon	Turkey	Woodcock	Total
<b>511-513</b>	<b>7.8</b>		<b>12.1</b>	<b>7.8</b>				<b>27.7</b>
<b>307</b>	<b>1.9</b>	<b>6.2</b>	<b>2.9</b>	<b>6.3</b>	<b>3.2</b>			<b>20.5</b>
372-373	2.7			2.7		0.2		5.6
367				5.4				5.4
369371			0.7	1.8	2.3		0.3	5.1
407				2.7	2.3			5.0
224,225,408				2.7				2.7
226-229				2.3				2.3
441-442				2.3				2.3
484-485				1.8				1.8
472-475				1.4				1.4
489-491				1.2				1.2
501-502				0.9				0.9
399-400				0.7				0.7
374-382		0.4						0.4

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of poultry based on the 4 highest adult consumers is 25.9 kg/y

The observed 97.5 percentile rate based on 42 observations is 27.7 kg/y

**Table 21. Adult consumption rates of eggs in the Aldermaston/Burghfield area (kg/y)**

Observation number	Chicken egg	Duck egg	Guineafowl egg	Peacock egg	Total
<b>230-231</b>	<b>34.3</b>				<b>34.3</b>
<b>511-513</b>	<b>17.8</b>		<b>5.2</b>	<b>1.1</b>	<b>24.1</b>
<b>391-394,441-442</b>	<b>22.2</b>				<b>22.2</b>
<b>211,259-261</b>	<b>20.8</b>				<b>20.8</b>
<b>472-475,484-485</b>	<b>17.8</b>				<b>17.8</b>
<b>476-477</b>	<b>14.2</b>				<b>14.2</b>
<b>372-373</b>	<b>13.3</b>				<b>13.3</b>
449-450	10.4				10.4
293-294,296-299	8.9				8.9
486-487,495-496	8.9				8.9
862,863,869	7.1				7.1
313	5.9				5.9
280-281		5.7			5.7
333-334	5.1				5.1
917,945	4.3				4.3
363,364,366	1.5				1.5
286	1.4				1.4

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of eggs based on the 25 highest adult consumers is 20.8 kg/y

The observed 97.5 percentile rate based on 51 observations is 31.8 kg/y



**Table 22. Adult consumption rates of wild/free foods  
in the Aldermaston/Burghfield area (kg/y)**

Observation number	Blackberry	Bullace plum	Sloe	Total
<b>407</b>	<b>3.4</b>	<b>1.7</b>	<b>1.1</b>	<b>6.2</b>
<b>408</b>	<b>3.4</b>	<b>1.7</b>	<b>1.1</b>	<b>6.2</b>
<b>307</b>	<b>4.5</b>			<b>4.5</b>
<b>440</b>	<b>4.5</b>			<b>4.5</b>
<b>385</b>	<b>3.6</b>			<b>3.6</b>
<b>386</b>	<b>3.6</b>			<b>3.6</b>
<b>387</b>	<b>3.6</b>			<b>3.6</b>
<b>388</b>	<b>3.6</b>			<b>3.6</b>
<b>438</b>	<b>2.7</b>			<b>2.7</b>
<b>439</b>	<b>2.7</b>			<b>2.7</b>
<b>347</b>	<b>1.5</b>		<b>0.8</b>	<b>2.3</b>
<b>348</b>	<b>1.5</b>		<b>0.8</b>	<b>2.3</b>
<b>349</b>	<b>1.5</b>		<b>0.8</b>	<b>2.3</b>
<b>399</b>	<b>2.3</b>			<b>2.3</b>
<b>400</b>	<b>2.3</b>			<b>2.3</b>
391	1.7			1.7
392	1.7			1.7
393	1.7			1.7
394	1.7			1.7
369	1.5			1.5
370	1.5			1.5
371	1.5			1.5
441	1.4			1.4
442	1.4			1.4
430	0.5		0.5	0.9
431	0.5		0.5	0.9
435	0.6			0.6
436	0.6			0.6
437	0.6			0.6
447	0.6			0.6
448	0.6			0.6
449	0.5			0.5
450	0.5			0.5
501		0.5		0.5
502-510		0.5		0.5

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of wild/free foods based on the 15 highest adult consumers is 3.5 kg/y

The observed 97.5 percentile rate based on 43 observations is 6.2 kg/y

**Table 23. Adult consumption rates of rabbits/hares in the Aldermaston/Burghfield area (kg/y)**

Observation number	Rabbit
<b>307</b>	<b>3.8</b>
<b>443-444</b>	<b>2.9</b>
472-475	0.3

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of rabbits/hares based on the 3 highest adult consumers is 3.2 kg/y

The observed 97.5 percentile rate based on 7 observations is 3.7 kg/y

**Table 24. Adult consumption rates of honey in the Aldermaston/Burghfield area (kg/y)**

Observation number	Honey
<b>440</b>	<b>23.6</b>
<b>471</b>	<b>7.7</b>
<b>483</b>	<b>5.4</b>
<b>368</b>	<b>2.7</b>
511-513	2.2
369	1.8
337-338	0.9
170	0.2
970,973	0.2

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of honey based on the 4 highest adult consumers is 9.9 kg/y

The observed 97.5 percentile rate based on 13 observations is 18.8 kg/y

**Table 25. Adult consumption rates of wild fungi in the Aldermaston/Burghfield area (kg/y)**

Observation number	Mushrooms
<b>307</b>	<b>4.5</b>
<b>443-444</b>	<b>2.3</b>
501-502	0.5

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of wild fungi based on the 3 highest adult consumers is 3.0 kg/y

The observed 97.5 percentile rate based on 5 observations is 4.3 kg/y

**Table 26. Adult consumption rates of venison in the Aldermaston/Burghfield area (kg/y)**

Observation number	Venison
<b>367</b>	<b>4.5</b>
<b>476-477</b>	<b>3.6</b>
<b>484-485</b>	<b>2.5</b>

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of venison based on the 5 highest adult consumers is 3.4 kg/y

The observed 97.5 percentile rate based on 5 observations is 4.4 kg/y

**Table 27. Children's consumption rates of green vegetables in the Aldermaston/Burghfield area (kg/y)**

**15 year old age group**

Observation number	Age	Artichoke	Broccoli	Brussel sprout	Cabbage	Calabrese	Cauliflower	Courgettes	Cucumber	Herbs	Lettuce	Marrow	Spinach	Squash	Total
<b>190</b>	<b>14</b>		<b>4.5</b>		<b>4.4</b>										<b>8.9</b>
<b>203</b>	<b>12</b>				<b>7.7</b>						<b>1.1</b>				<b>8.8</b>
<b>424</b>	<b>15</b>				<b>2.7</b>		<b>3.4</b>		<b>1.4</b>		<b>0.9</b>				<b>8.4</b>
<b>425</b>	<b>12</b>				<b>2.7</b>		<b>3.4</b>		<b>1.4</b>		<b>0.9</b>				<b>8.4</b>
<b>356</b>	<b>12</b>		<b>1.5</b>	<b>1.6</b>		<b>1.7</b>		<b>0.7</b>							<b>5.5</b>
<b>555</b>	<b>15</b>		<b>2.7</b>				<b>1.3</b>				<b>1.1</b>				<b>5.1</b>
<b>499</b>	<b>15</b>										<b>4.5</b>				<b>4.5</b>
<b>600</b>	<b>16</b>								<b>3.4</b>		<b>0.6</b>				<b>4.0</b>
<b>601</b>	<b>14</b>								<b>3.4</b>		<b>0.6</b>				<b>4.0</b>
198	15				0.5				0.8	0.1					1.5
18	12							0.2			0.5				0.6

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of green vegetables based on the 9 highest 15 year old age group consumers is 6.4 kg/y

The observed 97.5 percentile rate based on 11 observations is 8.9 kg/y

**Table 27. Children's consumption rates of green vegetables in the Aldermaston/Burghfield area (kg/y)**

**10 year old age group**

Observation number	Age	Artichoke	Broccoli	Brussel sprout	Cabbage	Calabrese	Cauliflower	Courgettes	Cucumber	Herbs	Lettuce	Marrow	Spinach	Squash	Total
<b>459</b>	<b>10</b>				<b>41.1</b>			<b>0.1</b>	<b>2.0</b>		<b>1.2</b>	<b>0.5</b>			<b>45.0</b>
<b>460</b>	<b>8</b>				<b>41.1</b>			<b>0.1</b>	<b>2.0</b>		<b>1.2</b>	<b>0.5</b>			<b>45.0</b>
<b>384</b>	<b>8</b>		<b>5.1</b>	<b>6.9</b>	<b>2.5</b>		<b>4.5</b>		<b>1.9</b>		<b>3.6</b>				<b>24.5</b>
<b>383</b>	<b>10</b>		<b>5.1</b>	<b>6.9</b>	<b>2.5</b>		<b>4.5</b>		<b>1.9</b>		<b>3.6</b>				<b>24.5</b>
412	7			2.8	7.2						0.7	0.8			11.5
191	9		4.5		4.4										8.9
204	11				7.7						1.1				8.8
335	8	0.3			2.9						1.7		3.2		8.1
355	10		1.5	1.6		1.7		0.7							5.5
556	8		2.7				1.3				1.1				5.1
500	9										4.5				4.5
249	9				1.6			0.2			2.3				4.0
994	10										1.8		0.7		2.5
995	8										1.8		0.7		2.5
199	10				0.5				0.8	0.1					1.5
17	10							0.2			0.5				0.6

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of green vegetables based on the 4 highest 10 year old age group consumers is 34.8 kg/y

The observed 97.5 percentile rate based on 16 observations is 45.0 kg/y

**Table 27. Children's consumption rates of green vegetables in the Aldermaston/Burghfield area (kg/y)**

**5 year old age group**

Observation number	Age	Artichoke	Broccoli	Brussel sprout	Cabbage	Calabrese	Cauliflower	Courgettes	Cucumber	Herbs	Lettuce	Marrow	Spinach	Squash	Total
<b>413</b>	<b>2</b>			<b>1.4</b>	<b>3.6</b>						<b>0.3</b>	<b>0.4</b>			<b>5.8</b>
<b>336</b>	<b>6</b>	<b>0.1</b>			<b>1.5</b>						<b>0.9</b>		<b>1.6</b>		<b>4.1</b>
<b>996</b>	<b>6</b>										<b>1.8</b>		<b>0.7</b>		<b>2.5</b>
200	6				0.5				0.8	0.1					1.5
532	3									0.1				0.3	0.4

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of green vegetables based on the 3 highest 5 year old age group consumers is 4.1 kg/y

The observed 97.5 percentile rate based on 5 observations is 5.6 kg/y

**1 year old age group**

Observation number	Age	Artichoke	Broccoli	Brussel sprout	Cabbage	Calabrese	Cauliflower	Courgettes	Cucumber	Herbs	Lettuce	Marrow	Spinach	Squash	Total
<b>531</b>	<b>1</b>									<b>0.1</b>				<b>0.3</b>	<b>0.4</b>

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of green vegetables based on the only 1 year old age group consumer is 0.4 kg/y

The observed 97.5 percentile rate is not applicable for 1 observation

**Table 28. Children's consumption rates of other vegetables in the Aldermaston/Burghfield area (kg/y)**

**15 year old age group**

Observation number	Age	Broad bean	French bean	Mangetout	Pea	Runner bean	Sweetcorn	Tomato	Total
<b>424</b>	<b>15</b>	<b>6.8</b>			<b>0.7</b>	<b>16.3</b>		<b>6.0</b>	<b>29.8</b>
<b>425</b>	<b>12</b>	<b>6.8</b>			<b>0.7</b>	<b>16.3</b>		<b>6.0</b>	<b>29.8</b>
<b>356</b>	<b>12</b>	<b>9.1</b>	<b>4.3</b>			<b>4.1</b>	<b>1.0</b>		<b>18.5</b>
<b>190</b>	<b>14</b>					<b>4.1</b>		<b>14.4</b>	<b>18.5</b>
600	16					6.1		1.8	7.9
601	14					6.1		1.8	7.9
499	15	1.1			0.2	3.4	1.1		5.9
944	13					2.0	0.7	1.8	4.5
203	12					3.4			3.4
18	12	0.4						2.7	3.1
198	15					1.3		0.9	2.2

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of other vegetables based on the 4 highest 15 year old age group consumers is 24.2 kg/y

The observed 97.5 percentile rate based on 11 observations is 29.8 kg/y

**Table 28. Children's consumption rates of other vegetables in the Aldermaston/Burghfield area (kg/y)**

**10 year old age group**

Observation number	Age	Broad bean	French bean	Mangetout	Pea	Runner bean	Sweetcorn	Tomato	Total
<b>459</b>	<b>10</b>	<b>8.2</b>	<b>6.5</b>		<b>2.7</b>	<b>16.3</b>	<b>0.7</b>		<b>34.4</b>
<b>460</b>	<b>8</b>	<b>8.2</b>	<b>6.5</b>		<b>2.7</b>	<b>16.3</b>	<b>0.7</b>		<b>34.4</b>
<b>355</b>	<b>10</b>	<b>9.1</b>	<b>4.3</b>			<b>4.1</b>	<b>1.0</b>		<b>18.5</b>
<b>191</b>	<b>9</b>					<b>4.1</b>		<b>14.4</b>	<b>18.5</b>
<b>249</b>	<b>9</b>	<b>8.2</b>			<b>2.3</b>			<b>5.1</b>	<b>15.5</b>
<b>412</b>	<b>7</b>	<b>3.3</b>			<b>0.9</b>	<b>8.4</b>	<b>0.2</b>	<b>1.2</b>	<b>14.1</b>
<b>335</b>	<b>8</b>	<b>2.6</b>		<b>0.6</b>	<b>1.9</b>	<b>5.2</b>	<b>2.7</b>		<b>13.1</b>
<b>384</b>	<b>8</b>	<b>2.5</b>			<b>2.5</b>	<b>4.9</b>		<b>2.0</b>	<b>11.8</b>
<b>383</b>	<b>10</b>	<b>2.5</b>			<b>2.5</b>	<b>4.9</b>		<b>2.0</b>	<b>11.8</b>
500	9	1.1			0.2	3.4	1.1		5.9
994	10	1.1				2.9			4.0
995	8	1.1				2.9			4.0
204	11					3.4			3.4
17	10	0.4						2.7	3.1
199	10					1.3		0.9	2.2
536						1.1			1.1

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of other vegetables based on the 9 highest 10 year old age group consumers is 19.1 kg/y

The observed 97.5 percentile rate based on 16 observations is 34.4 kg/y

**Table 28. Children's consumption rates of other vegetables in the Aldermaston/Burghfield area (kg/y)**

**5 year old age group**

Observation number	Age	Broad bean	French bean	Mangetout	Pea	Runner bean	Sweetcorn	Tomato	Total
<b>532</b>	<b>3</b>				<b>0.5</b>	<b>2.5</b>	<b>1.2</b>	<b>18</b>	<b>22.2</b>
<b>390</b>	<b>5</b>					<b>10.9</b>		<b>2.2</b>	<b>13.0</b>
<b>389</b>	<b>3</b>					<b>10.9</b>		<b>2.2</b>	<b>13.0</b>
413	2	1.6			0.5	4.2	0.1	0.6	7.0
336	6	1.3		0.3	1.0	2.6	1.5		6.7
888	3					2.0	0.7	1.8	4.5
996	6	1.1				2.9			4.0
200	6					1.3		0.9	2.2

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of other vegetables based on the 3 highest 5 year old age group consumers is 16.1 kg/y

The observed 97.5 percentile rate based on 8 observations is 13.0 kg/y

**1 year old age group**

Observation number	Age	Broad bean	French bean	Mangetout	Pea	Runner bean	Sweetcorn	Tomato	Total
<b>531</b>	<b>1</b>				<b>0.5</b>	<b>2.5</b>	<b>1.2</b>	<b>18</b>	<b>22.2</b>

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of other vegetables based on the only 1 year old age group consumer is 22.2 kg/y

The observed 97.5 percentile rate is not applicable for 1 observation



**Table 29. Children's consumption rates of root vegetables in the Aldermaston/Burghfield area (kg/y)**

**15 year old age group**

Observation number	Age	Artichoke	Beetroot	Carrot	Celery	Garlic	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
<b>424</b>	<b>15</b>		<b>0.7</b>	<b>4.1</b>	<b>4.1</b>		<b>0.7</b>	<b>5.4</b>			<b>4.8</b>				<b>19.7</b>
<b>425</b>	<b>12</b>		<b>0.7</b>	<b>4.1</b>	<b>4.1</b>		<b>0.7</b>	<b>5.4</b>			<b>4.8</b>				<b>19.7</b>
<b>18</b>	<b>12</b>		<b>0.4</b>				<b>5.0</b>	<b>1.7</b>	<b>0.5</b>		<b>0.5</b>				<b>8.0</b>
190	14		1.6					4.3		0.2		0.03			6.1
356	12	1.8					3.4		0.3						5.5
203	12		1.1	2.7				0.9	0.5			0.1			5.3
499	15		1.1					3.4		0.6					5.1
555	15			1.6											1.6
198	15		0.5	0.5				0.5		0.05					1.4
944	13									0.3		0.3			0.5

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of root vegetables based on the 3 highest 15 year old age group consumers is 15.8 kg/y

The observed 97.5 percentile rate based on 10 observations is 19.7 kg/y

**Table 29. Children's consumption rates of root vegetables in the Aldermaston/Burghfield area (kg/y)**

**10 year old age group**

Observation number	Age	Artichoke	Beetroot	Carrot	Celery	Garlic	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
<b>459</b>	<b>10</b>		<b>1.4</b>	<b>2.7</b>			<b>8.1</b>	<b>4.3</b>	<b>3.2</b>		<b>3.8</b>		<b>12.2</b>	<b>1.6</b>	<b>37.4</b>
<b>460</b>	<b>8</b>		<b>1.4</b>	<b>2.7</b>			<b>8.1</b>	<b>4.3</b>	<b>3.2</b>		<b>3.8</b>		<b>12.2</b>	<b>1.6</b>	<b>37.4</b>
<b>383</b>	<b>10</b>		<b>2.5</b>				<b>7.4</b>	<b>2.9</b>			<b>2.6</b>				<b>15.4</b>
<b>384</b>	<b>8</b>		<b>2.5</b>				<b>7.4</b>	<b>2.9</b>			<b>2.6</b>				<b>15.4</b>
249	9							8.6			2.9				11.5
335	8		0.6					6.5		0.4	1.3		2.6		11.4
17	10		0.4				5.0	1.7	0.5		0.5				8.0
412	7		0.5	0.5			2.3	1.5	0.9		1.6	0.2			7.5
191	9		1.6					4.3		0.2		0.03			6.1
355	10	1.8					3.4		0.3						5.5
204	11		1.1	2.7				0.9	0.5			0.1			5.3
500	9		1.1					3.4		0.6					5.1
556	8			1.6											1.6
199	10		0.5	0.5				0.5		0.05					1.4
994	10			0.9											0.9
995	8			0.9											0.9

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of root vegetables based on the 4 highest 10 year old age group consumers is 26.4 kg/y

The observed 97.5 percentile rate based on 16 observations is 37.4 kg/y

**Table 29. Children's consumption rates of root vegetables in the Aldermaston/Burghfield area (kg/y)**

**5 year old age group**

Observation number	Age	Artichoke	Beetroot	Carrot	Celery	Garlic	Leek	Onion	Parsnip	Radish	Shallot	Spring onion	Swede	Turnip	Total
<b>336</b>	<b>6</b>		<b>0.4</b>			<b>0.5</b>		<b>3.9</b>	<b>3.2</b>	<b>0.2</b>	<b>0.6</b>		<b>1.3</b>		<b>10.1</b>
<b>390</b>	<b>5</b>							<b>4.3</b>							<b>4.3</b>
<b>389</b>	<b>3</b>							<b>4.3</b>							<b>4.3</b>
<b>413</b>	<b>2</b>		<b>0.2</b>	<b>0.2</b>			<b>1.2</b>	<b>0.7</b>	<b>0.5</b>		<b>0.8</b>	<b>0.1</b>			<b>3.7</b>
200	6		0.5	0.5				0.5		0.05					1.4
996	6			0.9											0.9
888	3									0.3		0.3			0.6

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of root vegetables based on the 4 highest 5 year old age group consumers is 5.6 kg/y

The observed 97.5 percentile rate based on 7 observations is 9.3 kg/y

**Table 30. Children's consumption rates of potatoes in the Aldermaston/Burghfield area (kg/y)**

**15 year old age group**

Observation number	Age	Potatoes
<b>424</b>	<b>15</b>	<b>27.3</b>
<b>425</b>	<b>12</b>	<b>27.3</b>
<b>946</b>	<b>14</b>	<b>25.0</b>
<b>948</b>	<b>12</b>	<b>25.0</b>
<b>190</b>	<b>14</b>	<b>13.1</b>
<b>499</b>	<b>15</b>	<b>11.3</b>
18	12	8.2
356	12	6.8
198	15	2.7

**Notes**

Emboldened observations are the critical group consumers  
 The critical group consumption rate of potatoes based on the 6 highest 15 year old age group consumers is 21.5 kg/y  
 The observed 97.5 percentile rate based on 9 observations is 27.3 kg/y

**10 year old age group**

Observation number	Age	Potatoes
<b>459</b>	<b>10</b>	<b>98.3</b>
<b>460</b>	<b>8</b>	<b>98.3</b>
335	8	25.9
412	7	20.6
383	10	19.9
384	8	19.9
249	9	18.2
191	9	13.1
500	9	11.3
17	10	8.2
355	10	6.8
994	10	6.6
995	8	6.6
199	10	2.7
536	10	1.1
537	7	1.1

**Notes**

Emboldened observations are the critical group consumers  
 The critical group consumption rate of potatoes based on the 2 highest 10 year old age group consumers is 98.3 kg/y  
 The observed 97.5 percentile rate based on 16 observations is 98.3 kg/y

**Table 30. Children's consumption rates of potatoes in the Aldermaston/Burghfield area (kg/y)**

**5 year old age group**

Observation number	Age	Potatoes
<b>390</b>	<b>5</b>	<b>16.4</b>
<b>389</b>	<b>3</b>	<b>16.4</b>
<b>336</b>	<b>6</b>	<b>12.9</b>
<b>413</b>	<b>2</b>	<b>10.3</b>
<b>996</b>	<b>6</b>	<b>6.6</b>
532	3	5.0
200	6	2.7

**Notes**

Emboldened observations are the critical group consumers  
The critical group consumption rate of potatoes based on the 5 highest 5 year old age group consumers is 12.5 kg/y  
The observed 97.5 percentile rate based on 7 observations is 16.4 kg/y

**1 year old age group**

Observation number	Age	Potatoes
<b>531</b>	<b>1</b>	<b>5.0</b>

**Notes**

Emboldened observations are the critical group consumers  
The critical group consumption rate of potatoes based on the only 1 year old age group consumer is 5.0 kg/y  
The observed 97.5 percentile rate is not applicable for 1 observation

**Table 31. Children's consumption rates of domestic fruit in the Aldermaston/Burghfield area (kg/y)**

**15 year old age group**

Observation number	Age	Apple	Black-berry	Black-currant	Cherry	Goose-berry	Logan-berry	Pear	Plum	Pumpkin	Rasp-berry	Red-currant	Rhubarb	Straw-berry	Tay-berry	Total
<b>600</b>	<b>16</b>	<b>5.7</b>							<b>5.1</b>							<b>10.8</b>
<b>601</b>	<b>14</b>	<b>5.7</b>							<b>5.1</b>							<b>10.8</b>
<b>555</b>	<b>15</b>	<b>4</b>		<b>2.3</b>	<b>2.7</b>						<b>0.3</b>					<b>9.3</b>
<b>18</b>	<b>12</b>			<b>1.5</b>						<b>0.7</b>	<b>0.2</b>	<b>1.1</b>	<b>2.9</b>			<b>6.4</b>
<b>499</b>	<b>15</b>			<b>3.4</b>							<b>2.3</b>			<b>0.6</b>		<b>6.2</b>
<b>203</b>	<b>12</b>	<b>4.5</b>	<b>1.1</b>											<b>0.3</b>		<b>6.0</b>
<b>541</b>	<b>15</b>	<b>4.0</b>									<b>0.5</b>			<b>1.0</b>	<b>0.5</b>	<b>6.0</b>
<b>542</b>	<b>12</b>	<b>4.0</b>									<b>0.5</b>			<b>1.0</b>	<b>0.5</b>	<b>6.0</b>
<b>944</b>	<b>13</b>	<b>2.5</b>						<b>1.3</b>								<b>3.8</b>
190	14													0.8		0.8
198	15		0.2										0.4	0.1		0.6

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of domestic fruit based on the 9 highest 15 year old age group consumers is 7.2 kg/y

The observed 97.5 percentile rate based on 11 observations is 10.8 kg/y

**Table 31. Children's consumption rates of domestic fruit in the Aldermaston/Burghfield area (kg/y)**

**10 year old age group**

Observation number	Age	Apple	Black-berry	Black-currant	Cherry	Goose-berry	Logan-berry	Pear	Plum	Pumpkin	Rasp-berry	Red-currant	Rhubarb	Straw-berry	Tay-berry	Total
<b>412</b>	<b>7</b>	<b>2.1</b>				<b>0.8</b>	<b>0.5</b>	<b>1.5</b>			<b>2.1</b>	<b>1.0</b>	<b>0.5</b>	<b>0.9</b>		<b>9.3</b>
<b>556</b>	<b>8</b>	<b>4.0</b>		<b>2.3</b>	<b>2.7</b>						<b>0.3</b>					<b>9.3</b>
<b>17</b>	<b>10</b>			<b>1.5</b>						<b>0.7</b>	<b>0.2</b>	<b>1.1</b>	<b>2.9</b>			<b>6.4</b>
<b>335</b>	<b>8</b>		<b>1.9</b>	<b>0.4</b>		<b>0.5</b>					<b>1.6</b>			<b>0.5</b>	<b>1.3</b>	<b>6.3</b>
<b>500</b>	<b>9</b>			<b>3.4</b>							<b>2.3</b>			<b>0.6</b>		<b>6.2</b>
<b>204</b>	<b>11</b>	<b>4.5</b>	<b>1.1</b>											<b>0.3</b>		<b>6.0</b>
<b>994</b>	<b>10</b>		<b>0.2</b>								<b>4.1</b>		<b>1.4</b>			<b>5.6</b>
<b>995</b>	<b>8</b>		<b>0.2</b>								<b>4.1</b>		<b>1.4</b>			<b>5.6</b>
<b>249</b>	<b>9</b>					<b>0.3</b>					<b>0.8</b>	<b>0.2</b>	<b>2.3</b>	<b>1.1</b>		<b>4.6</b>
<b>446</b>	<b>10</b>		<b>3.4</b>													<b>3.4</b>
<b>445</b>	<b>7</b>		<b>3.4</b>													<b>3.4</b>
191	9													0.8		0.8
199	10		0.2										0.4	0.1		0.6
383	10													0.2		0.2
384	8													0.2		0.2

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of domestic fruit based on the 11 highest 10 year old age group consumers is 6.0 kg/y

The observed 97.5 percentile rate based on 15 observations is 9.3 kg/y

**Table 31. Children's consumption rates of domestic fruit in the Aldermaston/Burghfield area (kg/y)**

**5 year old age group**

Observation number	Age	Apple	Black-berry	Black-currant	Cherry	Goose-berry	Logan-berry	Pear	Plum	Pumpkin	Rasp-berry	Red-currant	Rhubarb	Straw-berry	Tay-berry	Total
<b>532</b>	<b>3</b>	<b>2.5</b>						<b>0.5</b>					<b>3.5</b>			<b>6.5</b>
<b>996</b>	<b>6</b>		<b>0.2</b>								<b>4.1</b>		<b>1.4</b>			<b>5.7</b>
<b>413</b>	<b>2</b>	<b>1.0</b>				<b>0.4</b>	<b>0.2</b>	<b>0.7</b>			<b>1.0</b>	<b>0.5</b>	<b>0.3</b>	<b>0.5</b>		<b>4.7</b>
<b>888</b>	<b>3</b>	<b>2.5</b>						<b>1.3</b>								<b>3.8</b>
<b>336</b>	<b>6</b>		<b>1.0</b>	<b>0.2</b>		<b>0.3</b>					<b>0.8</b>			<b>0.3</b>	<b>0.6</b>	<b>3.1</b>
200	6		0.2										0.4	0.1		0.6
390	5								0.2							0.2
389	3								0.2							0.2

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of domestic fruit based on the 5 highest 5 year old age group consumers is 4.7 kg/y

The observed 97.5 percentile rate based on 8 observations is 6.3 kg/y

**1 year old age group**

Observation number	Age	Apple	Black-berry	Black-currant	Cherry	Goose-berry	Logan-berry	Pear	Plum	Pumpkin	Rasp-berry	Red-currant	Rhubarb	Straw-berry	Tay-berry	Total
<b>531</b>	<b>1</b>	<b>2.5</b>						<b>0.5</b>					<b>3.5</b>			<b>6.5</b>

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of domestic fruit based on the only 1 year old age group consumer is 6.5 kg/y

The observed 97.5 percentile rate is not applicable for 1 observation



**Table 32. Children's consumption rates of milk in the Aldermaston/Burghfield area (l/y)**

**15 year old age group**

Observation number	Age	Milk
<b>214</b>	<b>16</b>	<b>260.7</b>
<b>215</b>	<b>14</b>	<b>260.7</b>
<b>21</b>	<b>16</b>	<b>138.3</b>

**Notes**

Emboldened observations are the critical group consumers  
The critical group consumption rate of milk based on the 3 highest 15 year old age group consumers is 219.9 l/y  
The observed 97.5 percentile rate based on 3 observations is 260.7 l/y

**10 year old age group**

Observation number	Age	Milk
<b>216</b>	<b>10</b>	<b>260.7</b>
<b>446</b>	<b>10</b>	<b>103.4</b>
<b>445</b>	<b>7</b>	<b>103.4</b>
244	8	69.1

**Notes**

Emboldened observations are the critical group consumers  
The critical group consumption rate of milk based on the 3 highest 10 year old age group consumers is 155.9 l/y  
The observed 97.5 percentile rate based on 4 observations is 248.9 l/y

**5 year old age group**

Observation number	Age	Milk
<b>243</b>	<b>6</b>	<b>69.1</b>

**Notes**

Emboldened observations are the critical group consumers  
The critical group consumption rate of milk based on the only 5 year old age group consumer is 69.1 l/y  
The observed 97.5 percentile rate is not applicable for 1 observation

**Table 33. Children's consumption rates of cattle meat in the Aldermaston/Burghfield area (kg/y)**

**10 year old age group**

Observation number	Age	Cattle meat
<b>446</b>	<b>10</b>	<b>5.9</b>
<b>445</b>	<b>7</b>	<b>5.9</b>

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of cattle meat based on the 2 highest 10 year old age group consumers is 5.9 kg/y

The observed 97.5 percentile rate based on 2 observations is 5.9 kg/y

**Table 34. Children's consumption rates of pig meat in the Aldermaston/Burghfield area (kg/y)**

**15 year old age group**

Observation number	Age	Pig meat
<b>361</b>	<b>13</b>	<b>12.7</b>
<b>362</b>	<b>12</b>	<b>12.7</b>

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of pig meat based on the 2 highest 15 year old age group consumers is 12.7 kg/y

The observed 97.5 percentile rate based on 2 observations is 12.7 kg/y

**Table 35. Children's consumption rates of sheep meat in the Aldermaston/Burghfield area (kg/y)**

**5 year old age group**

Observation number	Age	Sheep meat
<b>478</b>	<b>5</b>	<b>5.7</b>
<b>479</b>	<b>2</b>	<b>5.7</b>

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of sheep meat based on the 2 highest 5 year old age group consumers is 5.7 kg/y

The observed 97.5 percentile rate based on 2 observations is 5.7 kg/y

**Table 36. Children's consumption rates of poultry in the Aldermaston/Burghfield area (kg/y)**

**10 year old age group**

Observation number	Age	Goose
<b>383-384</b>	<b>10</b>	<b>0.4</b>

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of poultry based on the 2 highest 10 year old age group consumers is 0.4 kg/y

The observed 97.5 percentile rate based on 2 observations is 0.4 kg/y

**Table 37. Children's consumption rates of eggs in the Aldermaston/Burghfield area (kg/y)**

**15 year old age group**

Observation number	Age	Chicken egg
<b>870-871</b>	<b>16</b>	<b>7.1</b>
<b>946,948</b>	<b>14</b>	<b>4.3</b>
365	16	1.5

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of eggs based on the 4 highest 15 year old age group consumers is 5.7 kg/y

The observed 97.5 percentile rate based on 5 observations is 7.1 kg/y

**10 year old age group**

Observation number	Age	Chicken egg
<b>335</b>	<b>8</b>	<b>5.1</b>

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of eggs based on the only 10 year old age group consumer is 5.1 kg/y

The observed 97.5 percentile rate is not applicable for 1 observation

**5 year old age group**

Observation number	Age	Chicken egg
<b>478-479</b>	<b>5</b>	<b>3.6</b>
<b>336</b>	<b>6</b>	<b>2.5</b>

**Notes**

Emboldened observations are the critical group consumers

The critical group consumption rate of eggs based on the 3 highest 5 year old age group consumers is 3.2 kg/y

The observed 97.5 percentile rate based on 3 observations is 3.6 kg/y

**Table 38. Children's consumption rates of wild/free foods in the Aldermaston/Burghfield area (kg/y)**

**5 year old age group**

Observation number	Age	Blackberry
<b>390</b>	<b>5</b>	<b>1.8</b>
<b>389</b>	<b>3</b>	<b>1.8</b>

**Notes**

Emboldened observations are the critical group consumers  
The critical group consumption rate of wild/free foods based on the 2 highest 5 year old age group consumers is 1.8 kg/y  
The observed 97.5 percentile rate based on 2 observations is 1.8 kg/y

**Table 39. Children's consumption rates of rabbits/hares in the Aldermaston/Burghfield area (kg/y)**

**10 year old age group**

Observation number	Age	Rabbit
<b>446</b>	<b>10</b>	<b>2.9</b>
<b>445</b>	<b>7</b>	<b>2.9</b>

**Notes**

Emboldened observations are the critical group consumers  
The critical group consumption rate of rabbits/hares based on the 2 highest 10 year old age group consumers is 2.9 kg/y  
The observed 97.5 percentile rate based on 2 observations is 2.9 kg/y

**Table 40. Children's consumption rates of honey in the Aldermaston/Burghfield area (kg/y)**

**15 year old age group**

Observation number	Age	Honey
<b>978</b>	<b>16</b>	<b>0.2</b>
<b>977</b>	<b>14</b>	<b>0.2</b>

**Notes**

Emboldened observations are the critical group consumers  
The critical group consumption rate of honey based on the 2 highest 15 year old age group consumers is 0.2 kg/y  
The observed 97.5 percentile rate based on 2 observations is 0.2 kg/y

**Table 41. Children's consumption rates of wild fungi in the Aldermaston/Burghfield area (kg/y)**

**10 year old age group**

Observation number	Age	Mushrooms
<b>446</b>	<b>10</b>	<b>2.3</b>
<b>445</b>	<b>7</b>	<b>2.3</b>

**Notes**

Emboldened observations are the critical group consumers  
The critical group consumption rate of wild fungi based on the 2 highest 10 year old age group consumers is 2.3 kg/y  
The observed 97.5 percentile rate based on 2 observations is 2.3 kg/y

**Table 42. Children's consumption rates of venison in the Aldermaston/Burghfield area (kg/y)**

**5 year old age group**

Observation number	Age	Venison
<b>478</b>	<b>5</b>	<b>0.9</b>
<b>479</b>	<b>2</b>	<b>0.9</b>

**Notes**

Emboldened observations are the critical group consumers  
The critical group consumption rate of venison based on the 2 highest 5 year old age group consumers is 0.9 kg/y  
The observed 97.5 percentile rate based on 2 observations is 0.9 kg/y

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

<b>Domestic fruit</b>		<b>Other vegetables</b>	
<b>*Apple</b>	<b>17.6 %</b>	<b>*Runner bean</b>	<b>45.3 %</b>
Rhubarb	16.6 %	Broad bean	25.6 %
Raspberry	14.9 %	Tomato	16.1 %
Blackcurrant	11.4 %	French bean	4.9 %
<b>*Plum</b>	<b>7.7 %</b>	Pea	4.3 %
Strawberry	7.2 %	Sweetcorn	2.2 %
Gooseberry	6.6 %	Mangetout	1.4 %
Redcurrants	5.2 %	Pepper	0.1 %
Pear	2.9 %		
Loganberry	2.7 %	<b>Green vegetables</b>	
Pumpkin	2.7 %	Cabbage	39.0 %
Blackberry	2.4 %	Brussel sprout	18.2 %
Grapes	0.5 %	Lettuce	13.3 %
Cherry	0.4 %	Broccoli	6.5 %
Whitecurrant	0.4 %	Cauliflower	6.2 %
Damson	0.3 %	Marrow	4.4 %
Walnuts	0.3 %	Cucumber	4.3 %
Tayberry	0.2 %	Kale	2.3 %
Greengages	0.1 %	<b>*Spinach</b>	<b>2.3 %</b>
		Courgettes	1.4 %
<b>Root vegetables</b>		Calabrese	0.9 %
Onion	24.6 %	Chard	0.5 %
Leek	18.8 %	Asparagus	0.5 %
<b>*Carrot</b>	<b>15.1 %</b>	Squash	0.1 %
Shallot	10.6 %	Rocket	0.1 %
Beetroot	9.1 %	Herbs	0.1 %
Swede	8.7 %	Artichoke	0.01 %
Parsnip	8.2 %		
Celery	1.4 %	<b>Wild/free foods</b>	
Turnip	1.0 %	Blackberry	82.6 %
Spring onion	0.9 %	Bullus plum	10.3 %
Radish	0.8 %	Sloe	7.1 %
Garlic	0.4 %		
Celeriac	0.2 %	<b>Poultry</b>	
Artichoke	0.2 %	Pheasant	47.3 %
Fennel	0.1 %	Partridge	22.8 %
		Duck	16.9 %
<b>Eggs</b>		Pigeon	6.8 %
Chicken egg	95.6 %	Goose	5.4 %
Guineafowl egg	2.3 %	Woodcock	0.4 %
Duck egg	1.6 %	Turkey	0.2 %
Peacock egg	0.5 %		
		<b>Rabbits/hares</b>	
		<b>*Rabbit</b>	<b>100.0 %</b>

**NOTES**

Food type asterisked and emboldened were monitored by FSA (FSA and SEPA, 2002)  
Other food groups monitored were milk, honey, potatoes and wheat

**Table 44. Occupancy times in the Aldermaston direct radiation survey area (h/y)**

Observation number	Sex (U if unknown)	Age in years (U if unknown)	Distance from site perimeter (km)	Indoor occupancy	Outdoor occupancy	Total occupancy
<b>0 to 0.25 km zone</b>						
875	F	59	0.15	8710		8710
947	M	U	0.10	6844	1820	8664
949	F	U	0.10	6844	1820	8664
550	F	67	0.10	5484	3076	8560
183	F	12	0.10	7756	572	8328
184	M	6	0.10	7756	572	8328
171	F	75	0.20	7476	780	8256
172	M	70	0.20	7476	780	8256
203	M	12	0.10	6431	1825	8256
204	M	11	0.10	6431	1825	8256
193	F	85	0.10	8240		8240
531	M	1	0.10	6756	1460	8216
549	M	67	0.10	5120	3024	8144
866	F	U	0.10	5736	2372	8108
180	M	45	0.10	7634	442	8076
181	F	40	0.10	7634	442	8076
530	F	25	0.10	6423	1643	8066
201	M	42	0.10	6405	1643	8048
202	F	36	0.10	6405	1643	8048
532	F	3	0.10	6522	1460	7982
545	M	83	0.10	7150	778	7928
957	M	60	0.20	6514	1400	7914
958	F	65	0.20	6414	1400	7814
169	F	65	0.15	7086	658	7744
170	M	71	0.15	7086	658	7744
177	M	57	0.10	6948	780	7728
178	F	53	0.10	6558	1170	7728
190	F	14	0.10	6948	780	7728
191	M	9	0.10	6948	780	7728
534	M	U	0.10	7130	504	7634
186	M	30	0.10	6828	780	7608
187	F	37	0.10	6828	780	7608
182	F	19	0.10	7086	442	7528
956	F	38	0.20	6096	1400	7496
283	F	80	0.25	6582	910	7492
30	F	51	0.20	6752	638	7390
282	M	80	0.25	6429	910	7339
543	F	54	0.10	6554	778	7332
200	F	6	0.10	6170	1152	7322
950	M	15	0.10	5479	1820	7299
951	M	13	0.10	5479	1820	7299
952	M	11	0.10	5479	1820	7299
192	M	68	0.10	5688	1440	7128
197	F	34	0.10	6330	658	6988
540	F	U	0.10	6509	195	6704
529	M	25	0.10	5904	548	6452
281	M	57	0.25	6228	208	6436
541	M	15	0.10	6054	195	6249

**Table 44. Occupancy times in the Aldermaston direct radiation survey area (h/y)**

Observation number	Sex (U if unknown)	Age in years (U if unknown)	Distance from site perimeter (km)	Indoor occupancy	Outdoor occupancy	Total occupancy
542	F	12	0.10	6054	195	6249
536	F	10	0.10	5657	504	6161
537	M	7	0.10	5657	504	6161
535	F	U	0.10	5584	504	6088
29	M	47	0.20	5337	638	5975
280	F	55	0.25	5708	208	5916
868	M	U	0.10	5640	272	5912
865	F	U	0.15	4990	848	5838
544	M	59	0.10	4998	778	5776
198	M	15	0.10	5387	301	5688
173	M	35	0.10	5450	182	5632
175	F	7	0.10	5450	182	5632
176	F	2	0.10	5450	182	5632
539	M	U	0.10	5138	377	5515
953	M	38	0.20	5162	350	5512
867	F	U	0.15	4623	875	5498
199	F	10	0.10	4281	903	5184
174	F	34	0.10	4826	182	5008
864	M	U	0.15	4150	848	4998
873	M	U	0.15	3967	862	4829
881	F	29	0.15	4530	147	4677
546	M	35	0.10	3874	778	4652
880	M	24	0.15	4380	147	4527
194	M	48	0.10	3028	658	3686
652	M	U	0.15	2880		2880
614-616	M	U	0.15	2880		2880
670	M	U	0.15	2450		2450
671	M	U	0.15	2400		2400
321	M	U	0.10	2350		2350
322	M	51	0.10	2350		2350
770-776	M	U	0.10	2280		2280
777-778	F	U	0.10	2280		2280
699	U	U	0.15	2205		2205
618-648	M	U	0.15	2200		2200
726	M	U	0.10	2160		2160
727	F	U	0.10	2160		2160
782-787	M	U	0.10	2115		2115
788-789	F	U	0.10	2115		2115
650	M	U	0.15	2034	49	2083
882	M	U	0.01	2083		2083
779-781	M	U	0.10	2052		2052
713-716	M	U	0.10	2040		2040
717-722	F	U	0.10	2040		2040
729-738	M	U	0.10	2040		2040
739-741	F	U	0.10	2040		2040
702-706	M	U	0.10	2019		2019
707-711	F	U	0.10	2019		2019
669	M	U	0.15	1960		1960
610-612	M	U	0.15	1960		1960



**Table 44. Occupancy times in the Aldermaston direct radiation survey area (h/y)**

Observation number	Sex (U if unknown)	Age in years (U if unknown)	Distance from site perimeter (km)	Indoor occupancy	Outdoor occupancy	Total occupancy
617	M	U	0.15	1920		1920
653	M	U	0.15	1920		1920
657	U	U	0.15	1920		1920
658	M	U	0.15	1920		1920
691	M	U	0.15	1920		1920
762	F	U	0.10	1920		1920
825	F	U	0.10	1920		1920
661-665	U	U	0.15	1824	96	1920
831-834	M	U	0.10	1900		1900
320	M	39	0.10	1880		1880
682	F	U	0.15	1880		1880
674-681	M	U	0.15	1880		1880
790-794	F	U	0.10	1880		1880
795-806	M	U	0.10	1880		1880
837-845	M	U	0.10	1880		1880
846-851	F	U	0.10	1880		1880
936-937	U	U	0.01	1880		1880
759	F	U	0.10	1800		1800
745-752	M	U	0.10	1800		1800
753-754	F	U	0.10	1800		1800
697	F	U	0.15	1776		1776
698	M	U	0.15	178	1598	1776
694-696	M	U	0.15	1776		1776
326	F	51	0.10	1763		1763
327	F	52	0.10	1763		1763
328	F	54	0.10	1763		1763
329	F	43	0.10	1763		1763
330	F	40	0.10	1763		1763
323-325	M	47	0.10	1763		1763
827-828	F	U	0.10	1720		1720
829-830	F	U	0.10	1680		1680
683-686	M	U	0.15	1645		1645
725	F	U	0.10	1488		1488
884	F	U	0.01	1470		1470
886-887	F	U	0.01	1470		1470
742-744	U	U	0.10	1440		1440
655-656	M	U	0.15	1344		1344
668	M	U	0.15	334	1001	1335
649	F	U	0.15	1200		1200
826	F	U	0.10	1200		1200
712	F	U	0.10	1188		1188
852	F	U	0.10	1175		1175
723	F	U	0.10	1152		1152
700	U	U	0.15	1103		1103
672	U	U	0.15	1040		1040
613	F	U	0.15	980		980
651	F	U	0.15	931	49	980
724	M	U	0.10	960		960
824	M	U	0.10	960		960

**Table 44. Occupancy times in the Aldermaston direct radiation survey area (h/y)**

Observation number	Sex (U if unknown)	Age in years (U if unknown)	Distance from site perimeter (km)	Indoor occupancy	Outdoor occupancy	Total occupancy
659-660	M	U	0.15	960		960
692-693	F	U	0.15	960		960
835-836	M	U	0.10	950		950
760-761	M	U	0.10	900		900
807	M	U	0.10	846		846
533	F	U	0.10	800		800
756-758	M	U	0.10	768		768
808-823	M	U	0.10	752		752
667	U	U	0.15	187	563	750
701	U	U	0.15	735		735
666	U	U	0.15	720		720
33	M	U	0.20	600		600
34	F	U	0.20	600		600
755	F	U	0.10	480		480
673	U	U	0.15	416		416
687-690	M	U	0.15	384		384
763-769	M	U	0.10	384		384
31-32	M	U	0.20	360		360
35-36	F	U	0.20	360		360
185	F	40	0.10	336		336
654	F	U	0.15	288		288
551	F	U	0.10	143	143	286
547-548	M	U	0.10	286		286
728	M	U	0.10	240		240
538	U	U	0.10	192		192
<b>0.25 to 0.5 km zone</b>						
270	F	89	0.45	8748		8748
966	F	U	0.30	6888	1248	8136
967	M	3	0.30	6736	1400	8136
205	F	4	0.45	6405	1643	8048
268	F	59	0.45	6090	1820	7910
963	M	1	0.30	4952	2800	7752
962	M	U	0.30	4438	3170	7608
969	M	U	0.30	4438	3170	7608
961	F	U	0.30	6001	1456	7457
964	M	U	0.30	4242	3030	7272
965	F	U	0.30	4242	3030	7272
968	F	5	0.30	6601	365	6966
277	F	75	0.30	6462	156	6618
278	F	49	0.30	5069	468	5537
279	M	46	0.30	4812	468	5280
269	M	64	0.45	4360	78	4438
941	M	U	0.40	1974	1974	3948
942	M	U	0.40	1974	1974	3948
605	U	U	0.35	1680	1200	2880
606	U	U	0.35	1680	1200	2880
889	M	U	0.40	2820		2820
940	U	U	0.40	2820		2820
853	M	U	0.35	960	1440	2400

**Table 44. Occupancy times in the Aldermaston direct radiation survey area (h/y)**

Observation number	Sex (U if unknown)	Age in years (U if unknown)	Distance from site perimeter (km)	Indoor occupancy	Outdoor occupancy	Total occupancy
854	M	U	0.35	960	1440	2400
943	F	U	0.40	2115		2115
608	U	U	0.35	1920		1920
609	U	U	0.35	1920		1920
938	M	U	0.40		1920	1920
939	M	U	0.40		1920	1920
892-916	U	U	0.40	1810		1810
934-935	U	U	0.40	1645		1645
607	U	U	0.35	240	1200	1440
932-933	U	U	0.40	1410		1410
930-931	U	U	0.40	1175		1175
926-929	U	U	0.40	940		940
273	F	13	0.45	182	728	910
274	F	11	0.45	182	728	910
265	M	70	0.40		756	756
924-925	U	U	0.40	705		705
922	U	U	0.40	470		470
923	U	U	0.40	470		470
855-860	M	U	0.35	96	144	240
920-921	U	U	0.40	235		235
266-267	M	U	0.40		180	180
272	F	3	0.45	117		117
275	F	8	0.45	104		104
276	M	5	0.45	104		104
918-919	U	U	0.40	94		94
<b>0.5 to 1.0 km zone</b>						
264	M	69	0.85	4316	4380	8696
308	M	68	0.55	6328	2276	8604
288	M	63	0.60	6968	1456	8424
553	M	U	0.80	7860	546	8406
289	F	60	0.60	7154	910	8064
208	F	72	0.80	7944		7944
997	M	65	0.70	5012	2920	7932
998	F	63	0.70	6882	1050	7932
309	F	63	0.55	6834	910	7744
310	M	66	0.55	5468	2276	7744
556	F	8	0.80	6933	455	7388
286	M	33	0.80	3584	3696	7280
599	M	U	1.00	6472	728	7200
552	F	U	0.80	6644	546	7190
602	M	78	0.80	6085	805	6890
603	F	77	0.80	6085	805	6890
313	M	39	0.80	6698	183	6881
209	M	62	0.80	5384	1456	6840
331	M	46	1.00	4275	2565	6840
332	F	46	1.00	5301	1539	6840
891	F	41	0.80	5158	1470	6628
598	F	U	1.00	5432	1176	6608
554	M	17	0.80	6076	455	6531

**Table 44. Occupancy times in the Aldermaston direct radiation survey area (h/y)**

Observation number	Sex (U if unknown)	Age in years (U if unknown)	Distance from site perimeter (km)	Indoor occupancy	Outdoor occupancy	Total occupancy
555	M	15	0.80	6028	455	6483
263	F	U	0.60	4324	1768	6092
600	F	16	1.00	5218	805	6023
601	M	14	1.00	4689	1334	6023
861	F	67	0.90	5328	552	5880
883	M	45	0.80	4302	882	5184
210	F	57	0.80	4004	676	4680
206	F	56	0.90	3790	758	4548
262	M	U	0.60	3663	780	4443
207	M	60	0.90	3314	1105	4419
287	F	36	0.80	3880	200	4080
991	M	U	0.60	354	3186	3540
990	M	U	0.60	302	2722	3024
65	F	1	1.00	2370	130	2500
100-102	F	5	1.00	2370	130	2500
103-104	M	2	1.00	2370	130	2500
105-108	M	3	1.00	2370	130	2500
109-112	M	4	1.00	2370	130	2500
113-114	M	5	1.00	2370	130	2500
63-64	F	<1	1.00	2370	130	2500
66-67	M	<1	1.00	2370	130	2500
68-69	M	1	1.00	2370	130	2500
70-73	F	1	1.00	2370	130	2500
74-78	F	2	1.00	2370	130	2500
79-83	M	1	1.00	2370	130	2500
84-87	M	2	1.00	2370	130	2500
88-89	F	2	1.00	2370	130	2500
90-94	F	3	1.00	2370	130	2500
95-99	F	4	1.00	2370	130	2500
37-62	F	18	1.00	1609	130	1739
311	M	72	0.90	1470		1470
558-561	U	U	0.80	1275	85	1360
566-569	U	4	1.00	1190	170	1360
570-573	U	5	0.80	1190	170	1360
574-577	U	6	0.80	1190	170	1360
578-581	U	7	0.80	1190	170	1360
582-585	U	8	0.80	1190	170	1360
586-589	U	9	0.80	1190	170	1360
590-593	U	10	0.80	1190	170	1360
594-597	U	11	0.80	1190	170	1360
115-116	F	<1	1.00	985	65	1050
117-118	F	1	1.00	985	65	1050
119-120	M	<1	1.00	985	65	1050
121-122	M	1	1.00	985	65	1050
123-127	F	1	1.00	985	65	1050
128-131	F	2	1.00	985	65	1050
132-135	M	1	1.00	985	65	1050
136-140	M	2	1.00	985	65	1050
141-142	F	2	1.00	985	65	1050

**Table 44. Occupancy times in the Aldermaston direct radiation survey area (h/y)**

Observation number	Sex (U if unknown)	Age in years (U if unknown)	Distance from site perimeter (km)	Indoor occupancy	Outdoor occupancy	Total occupancy
143-147	F	3	1.00	985	65	1050
148-152	F	4	1.00	985	65	1050
153-155	F	5	1.00	985	65	1050
156-157	M	2	1.00	985	65	1050
158-161	M	3	1.00	985	65	1050
162-165	M	4	1.00	985	65	1050
166-168	M	5	1.00	985	65	1050
562-565	U	U	0.80	680		680
312	F	50	0.90	147		147
604	F	U	0.80	104		104

**Table 45. Analysis of direct radiation exposure in the Aldermaston area**

<b>0 to 0.25 km zone</b>	
Number of hours	Number of observations
8000 to 8760	19
7000 to 8000	24
6000 to 7000	9
5000 to 6000	14
4000 to 5000	5
3000 to 4000	1
2000 to 3000	97
1000 to 2000	113
0 to 1000	62

<b>0.25 to 0.5 km zone</b>	
Number of hours	Number of observations
8000 to 8760	4
7000 to 8000	7
6000 to 7000	2
5000 to 6000	2
4000 to 5000	1
3000 to 4000	2
2000 to 3000	7
1000 to 2000	36
0 to 1000	26

<b>0.5 to 1.0 km zone</b>	
Number of hours	Number of observations
8000 to 8760	5
7000 to 8000	9
6000 to 7000	13
5000 to 6000	2
4000 to 5000	5
3000 to 4000	2
2000 to 3000	52
1000 to 2000	117
0 to 1000	6

**Table 46. Gamma dose rate measurements in the Aldermaston direct radiation survey area (microGy/h)**

Address	Distance from site perimeter (kilometres)	NGR	Location	Gamma dose rate
Hurst Community School, posn 1	1.0	SU 575 623	Outside, grass	0.063
Hurst Community School, posn 2	1.0	"	Outside, grass	0.057
Almswood Road, Aldermaston	0.1	SU 592 625	Inside house	0.076
Almswood Road, Aldermaston	0.1	"	Outside, grass	0.067
Furze Road, Tadley	0.1	SU 588 626	Inside house	0.057
Furze Road, Tadley	0.1	"	Outside, grass	0.070
The Loosey, Aldermaston	0.8	SU 591 651	Outside, grass	0.062
House in Aldermaston	0.9	SU 590 652	Inside house	0.084
House in Aldermaston	0.9	"	Outside, grass	0.063
House 1, Falcon Fields, Tadley	0.2	SU 595 626	Inside house	0.127
House 1, Falcon Fields, Tadley	0.2	"	Outside, grass	0.062
House 2, Falcon Fields, Tadley	0.2	"	Inside house	0.104
House 2, Falcon Fields, Tadley	0.2	"	Outside, grass	0.068
Lake at Raceways, Paices Hill	0.1	SU 589 635	Outside, grass	0.055
Car park, Tadley	0.7	SU 598 622	Outside, concrete	0.056
House 1, Padworth	0.2	SU 614 640	Inside house	0.062
House 1, Padworth	0.2	"	Outside, grass	0.063
Farm 1, Aldermaston	0.3	SU 608 646	Outside, grass	0.054
Portland House Lake	0.6	SU 592 648	Outside, grass	0.072
Caravan park, Aldermaston	0.1	SU 587 632	Inside caravan	0.052
Caravan park, Aldermaston	0.1	"	Outside, grass	0.064

Background 1, Arbourfield	15.0	SU 743 677	Outside, grass	0.057
Background 2, Twyford Mill	22.0	SU 784 760	Outside, grass	0.060
Background 3, Thatcham	5.0	SU 505 670	Outside, grass	0.061
Background 4, Monk Sherborne	7.0	SU 608 558	Outside, grass	0.054

**Table 47. Occupancy times in the Burghfield direct radiation survey area (h/y)**

Observation number	Sex (U if unknown)	Age in years (U if unknown)	Distance from site perimeter (km)	Indoor occupancy	Outdoor occupancy	Total occupancy
<b>0.25 to 0.5 km zone</b>						
917	F	43	0.30	7470	325	7795
317	F	22	0.40	6226	1158	7384
971	F	U	0.45	6293	143	6436
954	F	U	0.30	6096	336	6432
948	F	12	0.30	6014	200	6214
946	M	14	0.30	5726	200	5926
945	M	48	0.30	5510	325	5835
314	F	47	0.40	4558	1151	5709
955	M	14	0.30	5475	96	5571
318	M	16	0.40	3927	705	4632
315	M	51	0.40	3842	721	4563
316	F	24	0.40	4138	206	4344
972	M	U	0.45	3120		3120
303-304	M	U	0.30	2184	96	2280
319	F	40	0.40	208		208
<b>0.5 to 1.0 km zone</b>						
299	F	80	0.95	8305	183	8488
297	F	75	0.95	7214	1274	8488
959	M	68	0.60	7600	832	8432
960	F	62	0.60	7600	832	8432
862	F	48	0.80	8162	52	8214
987	F	2	0.80	7534	650	8184
298	M	81	0.95	7630	546	8176
284	M	73	0.60	7143	1014	8157
984	F	39	0.80	7310	725	8035
285	F	70	0.60	7573	416	7989
307	M	76	0.85	6114	1638	7752
293	M	55	0.95	7287	183	7470
294	F	55	0.95	6826	548	7374
290	M	36	0.60	5398	1666	7064
974	F	U	1.00	6742	306	7048
876	F	35	1.00	6747	300	7047
871	F	13	0.80	6114	897	7011
980	F	U	1.00	6178	780	6958
981	M	44	0.80	5960	988	6948
977	F	14	0.60	6624	178	6802
863	M	59	0.80	6444	156	6600
878	M	10	1.00	5876	700	6576
976	M	10	1.00	5839	737	6576
985	M	10	0.80	5847	702	6549
986	M	6	0.80	5822	702	6524
888	M	3	0.60	5358	1144	6502
978	F	16	0.60	6280	178	6458
944	M	13	0.60	5546	910	6456
885	F	36	0.60	5364	1040	6404
993	F	U	0.60	5452	806	6258
869	F	19	0.80	5940	104	6044



**Table 47. Occupancy times in the Burghfield direct radiation survey area (h/y)**

Observation number	Sex (U if unknown)	Age in years (U if unknown)	Distance from site perimeter (km)	Indoor occupancy	Outdoor occupancy	Total occupancy
292	M	3	0.60	5042	910	5952
979	M	U	1.00	5058	765	5823
970	M	45	0.60	5017	767	5784
996	M	6	0.60	5149	611	5760
995	F	8	0.60	5097	611	5708
994	M	10	0.60	5104	442	5546
291	F	33	0.60	4878	546	5424
973	F	45	0.60	4632	767	5399
879	M	44	0.60	4624	520	5144
874	M	21	0.80	5044	52	5096
975	M	U	1.00	4687	260	4947
870	M	16	0.80	3948	780	4728
877	M	34	1.00	4157	300	4457
992	M	U	0.60	3967	416	4383
983	M	14	1.00	3777	390	4167
982	M	16	1.00	3441	390	3831
305	M	U	0.95	2400		2400
296	F	23	0.95	2280		2280
300-302	M	U	0.95	2280		2280
295	F	18	0.95	1434	70	1504
872	F	43	0.60		1404	1404
306	F	U	0.95	1008		1008
367	M	50	0.80		90	90

**Table 48. Analysis of direct radiation exposure in the Burghfield area**

<b>0.25 to 0.5 km zone</b>	
Number of hours	Number of observations
8000 to 8760	0
7000 to 8000	2
6000 to 7000	3
5000 to 6000	4
4000 to 5000	2
3000 to 4000	2
2000 to 3000	2
1000 to 2000	0
0 to 1000	1

<b>0.5 to 1.0 km zone</b>	
Number of hours	Number of observations
8000 to 8760	9
7000 to 8000	8
6000 to 7000	14
5000 to 6000	10
4000 to 5000	5
3000 to 4000	1
2000 to 3000	5
1000 to 2000	3
0 to 1000	1

**Notes**

No data was obtained for the 0 to 0.25 km zone

**Table 49. Gamma dose rate measurements in the Burghfield direct radiation survey area (microGy /h)**

Address	Distance from site perimeter (kilometres)	NGR	Location	Gamma dose rate
The Mearings, Burghfield	0.6	SU 674 677	Inside house	0.092
The Mearings, Burghfield, Posn. 1	0.6	"	Outside, grass	0.073
The Mearings, Burghfield, Posn 2	0.7	"	Outside, grass	0.065
The Pightle, Grazely Green	0.9	SU 679 670	Inside house	0.064
The Pightle, Grazely Green	0.9	"	Outside, grass	0.071
Farm 1, Burghfield	0.6	SU 689 682	Outside, grass	0.067
Railway Bridge, Grazely Green	0.9	SU 691 673	Outside, grass	0.064
North of site	0.6	SU 686 687	Outside, grass	0.065
Burghfield site perimeter	0.1	SU 683 677	Outside, grass	0.066

Background 1, Arbourfield	7.0	SU 743 677	Outside, grass	0.057
Background 2, Twyford Mill	13.0	SU 784 760	Outside, grass	0.060
Background 3, Thatcham	17.0	SU 505 670	Outside, grass	0.061
Background 4, Monk Sherborne	12.0	SU 608 558	Outside, grass	0.054

**Table 50. Examples of food group combinations eaten and external exposure by adults for consideration for dose assessment purposes**

Combination number	Green vegetables	Other vegetables	Root vegetables	Potatoes	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Fish (freshwater)	Crustaceans (freshwater)	Occupancy on bank side - River Kennet	Handling pots - River Kennet	Occupancy on water - River Thames	Indoor occupancy	Outdoor occupancy
1	*	*	*	*	*						*											*	*
2	*	*	*	*	*	*																*	*
3														*								*	*
4	*	*	*	*	*				*	*		*	*		*							*	*
5							*	*		*	*												
6		*		*	*		*				*											*	*
7						*					*											*	*
8	*	*	*	*	*					*		*		*									
9									*	*						*							*
10	*	*	*	*	*					*	*	*											
11					*	*	*						*		*								
12	*	*	*	*					*	*	*		*										
13									*		*					*							
14	*	*	*	*	*	*	*			*	*			*		*							
15				*	*					*	*			*									
16																	*						
17																	*				*	*	*
18																			*	*			
19																				*		*	



**Annex 1. Adult's consumption rates (kg/y or l/y) and occupancy times (h/y) in the Aldermaston/Burghfield area**

Observation number	Sex (U if unknown)	Age in years (U if unknown)	Distance of property from Burghfield site perimeter (km)	Distance of property from Aldermaston site perimeter (km)	Green vegetables	Other vegetables	Root vegetables	Potatoes	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Fish (freshwater)	Crustaceans (freshwater)	Occupancy on bank side - River Kennet	Handling pots - River Kennet	Occupancy on water - River Thames	Indoor occupancy	Outdoor occupancy		
28	M	40	3.5							<b>358.0</b>																			
29	M	47		0.2	0.5	4.1	2.3	4.5	10.7																		5337	638	
30	F	51		0.2	0.5	4.1	2.3	4.5	9.5																		6752	638	
31-36	M	U		0.2																							360		
37	F	18		1.0																							1609	130	
38	F	56		1.0																							1609	130	
39-62	F	U		1.0																							1609	130	
169	F	65		0.2																							7086	658	
170	M	71		0.2														0.2									7086	658	
171	F	75		0.2																							7476	780	
172	M	70		0.2																							7476	780	
173	M	35		0.1																							5450	182	
174	F	34		0.1																							4826	182	
177	M	57		0.1					12.9																		6948	780	
178	F	53		0.1					12.9																		6558	1170	
179	F	40	3.8							<b>358.0</b>																			
180	M	45		0.1																								7634	442
181	F	40		0.1																								7634	442
182	F	19		0.1																								7086	442
185	F	40		0.1																								336	
186	M	30		0.1	8.9	18.5	6.1	13.1	0.8																			6828	780
187	F	37		0.1	8.9	18.5	6.1	13.1	0.8																			6828	780









**Annex 1. Adult's consumption rates (kg/y or l/y) and occupancy times (h/y) in the Aldermaston/Burghfield area**

Observation number	Sex (U if unknown)	Age in years (U if unknown)	Distance of property from Burghfield site perimeter (km)	Distance of property from Aldermaston site perimeter (km)	Green vegetables	Other vegetables	Root vegetables	Potatoes	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Fish (freshwater)	Crustaceans (freshwater)	Occupancy on bank side - River Kennet	Handling pots - River Kennet	Occupancy on water - River Thames	Indoor occupancy	Outdoor occupancy	
270	F	89		0.5																						8748		
277	F	75		0.3		7.2			5.9																		6462	156
278	F	49		0.3					5.9																		5069	468
279	M	46		0.3					5.9																		4812	468
280	F	55		0.3		13.1			8.2						5.7												5708	208
281	M	57		0.3		13.1			8.2						5.7												6228	208
282	M	80		0.3	3.2	28.8			15.9																		6429	910
283	F	80		0.3	3.2	28.8	6.8		11.3																		6582	910
284	M	73	0.6			5.5		32.8	4.2																		7143	1014
285	F	70	0.6			5.5		32.8	4.2																		7573	416
286	M	33		0.8		18.5		<b>54.4</b>	4.5		<b>52.0</b>				1.4												3584	3696
287	F	36		0.8		18.5		<b>54.4</b>	4.5		<b>52.0</b>																3880	200
288	M	63		0.6																							6968	1456
289	F	60		0.6																							7154	910
290	M	36	0.6																								5398	1666
291	F	33	0.6																								4878	546
293	M	55	1.0		16.3	22.0	5.8	2.6	6.0						8.9												7287	183
294	F	55	1.0		16.3	22.0	5.8	2.6	6.0						8.9												6826	548
295	F	18	1.0																								1434	70
296	F	23	1.0		16.3	22.0	5.8	2.6	6.0						8.9												2280	
297	F	75	1.0		16.3	22.0	5.8	2.6	6.0						8.9												7214	1274
298	M	81	1.0		16.3	22.0	5.8	2.6	6.0						8.9												7630	546

















**Annex 1. Adult's consumption rates (kg/y or l/y) and occupancy times (h/y) in the Aldermaston/Burghfield area**

Observation number	Sex (U if unknown)	Age in years (U if unknown)	Distance of property from Burghfield site perimeter (km)	Distance of property from Aldermaston site perimeter (km)	Green vegetables	Other vegetables	Root vegetables	Potatoes	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Fish (freshwater)	Crustaceans (freshwater)	Occupancy on bank side - River Kennet	Handling pots - River Kennet	Occupancy on water - River Thames	Indoor occupancy	Outdoor occupancy
496	F	U		1.5	5.4	<b>51.0</b>	17.5	27.3	5.7						8.9												
497	M	U		1.5	4.5	5.9	5.1	11.3	6.2																		
498	F	U		1.5	4.5	5.9	5.1	11.3	6.2																		
501	M	68		2.0	9.8	19.2	7.4	10.2	19.2					0.9		0.5			0.5								
502	M	74		2.0	9.8	19.2	7.4	10.2	19.2					0.9		0.5			0.5								
503	M	U		2.0	9.8	19.2	7.4	10.2	19.2							0.5											
504	M	U		2.0	9.8	19.2	7.4	10.2	19.2							0.5											
505	M	U		2.0	9.8	19.2	7.4	10.2	19.2							0.5											
506-510	F	U		2.0	9.8	19.2	7.4	10.2	19.2							0.5											
511	F	65		3.5				22.7	21.9					<b>27.7</b>	<b>24.1</b>			2.2									
512	M	65		3.5				22.7	21.9					<b>27.7</b>	<b>24.1</b>			2.2									
513	M	U		3.5				22.7	21.9					<b>27.7</b>	<b>24.1</b>			2.2									
514	M	62		1.5			4.5	<b>112.5</b>																			
515	F	62		1.5			4.5	<b>112.5</b>																			
516-517	F	U		1.5			4.5	<b>112.5</b>																			
518-519	M	U		1.5			4.5	<b>112.5</b>																			
520	M	65		3.0	4.0	<b>50.4</b>	9.9	<b>41.0</b>																			
521	F	65		3.0	4.0	<b>50.4</b>	9.9	<b>41.0</b>																			
522	F	U		3.0	4.0	<b>50.4</b>	9.9	<b>41.0</b>																			
523	M	68	1.1		<b>49.7</b>	<b>44.8</b>	<b>53.8</b>	<b>59.9</b>																			
524	F	68	1.1		<b>49.7</b>	<b>44.8</b>	<b>53.8</b>	<b>59.9</b>																			
525	M	45	5.0																			<b>1.2</b>					

**Annex 1. Adult's consumption rates (kg/y or l/y) and occupancy times (h/y) in the Aldermaston/Burghfield area**

Observation number	Sex (U if unknown)	Age in years (U if unknown)	Distance of property from Burghfield site perimeter (km)	Distance of property from Aldermaston site perimeter (km)	Green vegetables	Other vegetables	Root vegetables	Potatoes	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Fish (freshwater)	Crustaceans (freshwater)	Occupancy on bank side - River Kennet	Handling pots - River Kennet	Occupancy on water - River Thames	Indoor occupancy	Outdoor occupancy
526	F	45	5.0																			1.2					
529	M	25		0.1	0.4	22.2		5.0	6.5																	5904	548
530	F	25		0.1	0.4	22.2		5.0	6.5																	6423	1643
533	F	U		0.1																						800	
534	M	U		0.1		1.1		1.1																		7130	504
535	F	U		0.1		1.1		1.1																		5584	504
538	U	U		0.1																						192	
539	M	U		0.1	1.8	12.1	10.0		6.0																	5138	377
540	F	U		0.1	1.8	12.1	10.0		6.0																	6509	195
543	F	54		0.1																						6554	778
544	M	59		0.1																						4998	778
545	M	83		0.1																						7150	778
546	M	35		0.1																						3874	778
547	M	U		0.1																						286	
548	F	U		0.1																						286	
549	M	67		0.1																						5120	3024
550	F	67		0.1																						5484	3076
551	F	U		0.1																						143	143
552	F	U		0.8	5.1		1.6		9.3																	6644	546
553	M	U		0.8	5.1		1.6		9.3																	7860	546
554	M	17		0.8	5.1		1.6		9.3																	6076	455
558-561	U	U		0.8																						1275	85









**Annex 1. Adult's consumption rates (kg/y or l/y) and occupancy times (h/y) in the Aldermaston/Burghfield area**

Observation number	Sex (U if unknown)	Age in years (U if unknown)	Distance of property from Burghfield site perimeter (km)	Distance of property from Aldermaston site perimeter (km)	Green vegetables	Other vegetables	Root vegetables	Potatoes	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Fish (freshwater)	Crustaceans (freshwater)	Occupancy on bank side - River Kennet	Handling pots - River Kennet	Occupancy on water - River Thames	Indoor occupancy	Outdoor occupancy		
846-851	F	U		0.1																						1880			
852	F	U		0.1																							1175		
853-854	M	U		0.4																							960	1440	
855-860	M	U		0.4																							96	144	
861	F	67		0.9	8.2	3.2		27.3	5.4																		5328	552	
862	F	48	0.8												7.1												8162	52	
863	M	59	0.8												7.1												6444	156	
864	M	U		0.2																							4150	848	
865	F	U		0.2																							4990	848	
866	F	U		0.1					12.5																		5736	2372	
867	F	U		0.2																							4623	875	
868	M	U		0.1					12.5																		5640	272	
869	F	19	0.8												7.1												5940	104	
872	F	43	0.6																									1404	
873	M	U		0.2																							3967	862	
874	M	21	0.8																								5044	52	
875	F	59		0.2																							8710		
876	F	35	1.0																								6747	300	
877	M	34	1.0																								4157	300	
879	M	44	0.6			4.5	0.5		3.8																		4624	520	
880	M	24		0.2																							4380	147	
881	F	29		0.2																							4530	147	



**Annex 1. Adult's consumption rates (kg/y or l/y) and occupancy times (h/y) in the Aldermaston/Burghfield area**

Observation number	Sex (U if unknown)	Age in years (U if unknown)	Distance of property from Burghfield site perimeter (km)	Distance of property from Aldermaston site perimeter (km)	Green vegetables	Other vegetables	Root vegetables	Potatoes	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Fish (freshwater)	Crustaceans (freshwater)	Occupancy on bank side - River Kennet	Handling pots - River Kennet	Occupancy on water - River Thames	Indoor occupancy	Outdoor occupancy		
882	M	U		0.01																						2083			
883	M	45		0.8																							4302	882	
884	F	U		0.01																							1470		
885	F	36	0.6			4.5	0.5		3.8																		5364	1040	
886	F	U		0.01																							1470		
887	F	U		0.01																							1470		
889	M	U		0.4																							2820		
891	F	41		0.8																							5158	1470	
892-916	U	U		0.4																							1810		
917	F	43	0.3					25.0							4.3												7470	325	
918-919	U	U		0.4																							94		
920-921	U	U		0.4																							235		
922-923	U	U		0.4																							470		
924-925	U	U		0.4																							705		
926-929	U	U		0.4																							940		
930-931	U	U		0.4																							1175		
932-933	U	U		0.4																							1410		
934-935	U	U		0.4																							1645		
936-937	U	U		0.01																							1880		
938-939	M	U		0.4																								1920	
940	U	U		0.4																							2820		
941-942	M	U		0.4																							1974	1974	

**Annex 1. Adult's consumption rates (kg/y or l/y) and occupancy times (h/y) in the Aldermaston/Burghfield area**

Observation number	Sex (U if unknown)	Age in years (U if unknown)	Distance of property from Burghfield site perimeter (km)	Distance of property from Aldermaston site perimeter (km)	Green vegetables	Other vegetables	Root vegetables	Potatoes	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Fish (freshwater)	Crustaceans (freshwater)	Occupancy on bank side - River Kennet	Handling pots - River Kennet	Occupancy on water - River Thames	Indoor occupancy	Outdoor occupancy	
943	F	U		0.4																						2115		
945	M	48	0.3					25.0							4.3												5510	325
947	M	U		0.1																	1.2						6844	1820
949	F	U		0.1																	1.2						6844	1820
953	M	38		0.2																							5162	350
954	F	U	0.3																								6096	336
956	F	38		0.2																							6096	1400
957	M	60		0.2																							6514	1400
958	F	65		0.2																							6414	1400
959	M	68	0.6																								7600	832
960	F	62	0.6																								7600	832
961	F	U		0.3																							6001	1456
962	M	U		0.3																							4438	3170
964	M	U		0.3																							4242	3030
965	F	U		0.3																							4242	3030
966	F	U		0.3																							6888	1248
969	M	U		0.3																							4438	3170
970	M	45	0.6															0.2									5017	767
971	F	U	0.5																								6293	143
972	M	U	0.5																								3120	
973	F	45	0.6															0.2									4632	767
974	F	U	1.0																								6742	306

**Annex 1. Adult's consumption rates (kg/y or l/y) and occupancy times (h/y) in the Aldermaston/Burghfield area**

Observation number	Sex (U if unknown)	Age in years (U if unknown)	Distance of property from Burghfield site perimeter (km)	Distance of property from Aldermaston site perimeter (km)	Green vegetables	Other vegetables	Root vegetables	Potatoes	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Fish (freshwater)	Crustaceans (freshwater)	Occupancy on bank side - River Kennet	Handling pots - River Kennet	Occupancy on water - River Thames	Indoor occupancy	Outdoor occupancy	
975	M	U	1.0																							4687	260	
979	M	U	1.0																							5058	765	
980	F	U	1.0																							6178	780	
981	M	44	0.8																							5960	988	
984	F	39	0.8																							7310	725	
990	M	U		0.6																						302	2722	
991	M	U		0.6																						354	3186	
992	M	U	0.6		2.5	4.0	0.9	6.6	5.6																	3967	416	
993	F	U	0.6		2.5	4.0	0.9	6.6	5.6																	5452	806	
997	M	65		0.7	2.3	23.4	12.8	27.3	1.2	118.2																5012	2920	
998	F	63		0.7	2.3	23.4	12.8	27.3	1.2	118.2																6882	1050	
999	M	U																					320	320				
1000	M	U																					320	320				
1001-1015	U	U																							450			

Emboldened observations are the critical group members





**Annex 2. Children's consumption rates (kg/y or l/y) and occupancy times (h/y) in the Aldermaston/Burghfield area**

Observation number	Sex (U if unknown)	Age in years	Distance of property from Burghfield site perimeter (km)	Distance of property from Aldermaston site perimeter (km)	Green vegetables	Other vegetables	Root vegetables	Potatoes	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Fish (freshwater)	Crustaceans (freshwater)	Indoor occupancy	Outdoor occupancy
446	F	10		4.0					<b>3.4</b>	<b>103.4</b>	<b>5.9</b>						<b>2.9</b>		<b>2.3</b>					
459	M	10		1.1	<b>45.0</b>	<b>34.4</b>	<b>37.4</b>	<b>98.3</b>																
536	F	10		0.1		1.1		1.1															5657	504
590-593	U	10		0.8																			1190	170
17	M	10	4.5		0.6	3.1	8.0	8.2	<b>6.4</b>															
216	M	10	3.9							<b>260.7</b>														
355	M	10	3.5		5.5	<b>18.5</b>	5.5	6.8																
878	M	10	1.0																				5876	700
976	M	10	1.0																				5839	737
985	M	10	0.8																				5847	702
994	M	10	0.6		2.5	4.0	0.9	6.6	<b>5.6</b>														5104	442
191	M	9		0.1	8.9	<b>18.5</b>	6.1	13.1	0.8														6948	780
500	F	9		1.5	4.5	5.9	5.1	11.3	<b>6.2</b>															
586-589	U	9		0.8																			1190	170
249	M	9	3.5		4.0	<b>15.5</b>	11.5	18.2	<b>4.6</b>															
275	F	8		0.5																			104	
335	M	8		1.5	8.1	<b>13.1</b>	11.4	25.9	<b>6.3</b>						<b>5.1</b>									
384	M	8		1.1	<b>24.5</b>	<b>11.8</b>	<b>15.4</b>	19.9	0.2					<b>0.4</b>										
460	M	8		1.1	<b>45.0</b>	<b>34.4</b>	<b>37.4</b>	<b>98.3</b>																
556	F	8		0.8	5.1		1.6		<b>9.3</b>														6933	455
582-585	U	8		0.8																			1190	170
244	M	8	4.3							69.1														
995	F	8	0.6		2.5	4.0	0.9	6.6	<b>5.6</b>														5097	611
175	F	7		0.1																			5450	182

**Annex 2. Children's consumption rates (kg/y or l/y) and occupancy times (h/y) in the Aldermaston/Burghfield area**

Observation number	Sex (U if unknown)	Age in years	Distance of property from Burghfield site perimeter (km)	Distance of property from Aldermaston site perimeter (km)	Green vegetables	Other vegetables	Root vegetables	Potatoes	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Fish (freshwater)	Crustaceans (freshwater)	Indoor occupancy	Outdoor occupancy
412	M	7		2.0	11.5	<b>14.1</b>	7.5	20.6	<b>9.3</b>															
445	M	7		4.0					<b>3.4</b>	<b>103.4</b>	<b>5.9</b>						<b>2.9</b>		<b>2.3</b>					
537	M	7		0.1				1.1															5657	504
578-581	U	7		0.8																			1190	170

**5 year old age group**

184	M	6		0.1																			7756	572
200	F	6		0.1	1.5	2.2	1.4	2.7	0.6														6170	1152
243	F	6	4.3							<b>69.1</b>														
336	F	6		1.5	<b>4.1</b>	6.7	<b>10.1</b>	<b>12.9</b>	<b>3.1</b>						<b>2.5</b>									
574-577	U	6		0.8																			1190	170
986	M	6	0.8																				5822	702
996	M	6	0.6		<b>2.5</b>	4.0	0.9	<b>6.6</b>	<b>5.6</b>														5149	611
100-102	F	5		1.0																			2370	130
113-114	M	5		1.0																			2370	130
153-155	F	5		1.0																			985	65
166-168	M	5		1.0																			985	65
276	M	5		0.5																			104	
390	M	5		1.5		<b>13.0</b>	<b>4.3</b>	<b>16.4</b>	0.2							<b>1.8</b>								
478	M	5		3.4									<b>5.7</b>		<b>3.6</b>					<b>0.9</b>				
570-573	U	5		0.8																			1190	170
968	F	5		0.3																			6601	365
95-99	F	4		1.0																			2370	130
109-112	M	4		1.0																			2370	130
148-152	F	4		1.0																			985	65

**Annex 2. Children's consumption rates (kg/y or l/y) and occupancy times (h/y) in the Aldermaston/Burghfield area**

Observation number	Sex (U if unknown)	Age in years	Distance of property from Burghfield site perimeter (km)	Distance of property from Aldermaston site perimeter (km)	Green vegetables	Other vegetables	Root vegetables	Potatoes	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Fish (freshwater)	Crustaceans (freshwater)	Indoor occupancy	Outdoor occupancy
162-165	M	4		1.0																			985	65
205	F	4		0.5																			6405	1643
566-569	U	4		1.0																			1190	170
90-94	F	3		1.0																			2370	130
105-108	M	3		1.0																			2370	130
143-147	F	3		1.0																			985	65
158-161	M	3		1.0																			985	65
272	F	3		0.5																			117	
292	M	3	0.6																				5042	910
389	F	3		1.5		<b>13.0</b>	<b>4.3</b>	<b>16.4</b>	0.2						<b>1.8</b>									
532	F	3		0.1	0.4	<b>22.2</b>		5.0	<b>6.5</b>														6522	1460
888	M	3	0.6			4.5	0.5		<b>3.8</b>														5358	1144
967	M	3		0.3																			6736	1400
74-78	F	2		1.0																			2370	130
84-87	M	2		1.0																			2370	130
88-89	F	2		1.0																			2370	130
103-104	M	2		1.0																			2370	130
128-131	F	2		1.0																			985	65
136-140	M	2		1.0																			985	65
141-142	F	2		1.0																			985	65
156-157	M	2		1.0																			985	65
176	F	2		0.1																			5450	182
413	F	2		2.0	<b>5.8</b>	7.0	<b>3.7</b>	<b>10.3</b>	<b>4.7</b>															
479	F	2		3.4								<b>5.7</b>		<b>3.6</b>						<b>0.9</b>				



**Annex 2. Children's consumption rates (kg/y or l/y) and occupancy times (h/y) in the Aldermaston/Burghfield area**

Observation number	Sex (U if unknown)	Age in years	Distance of property from Burghfield site perimeter (km)	Distance of property from Aldermaston site perimeter (km)	Green vegetables	Other vegetables	Root vegetables	Potatoes	Domestic fruit	Milk	Cattle meat	Pig meat	Sheep meat	Poultry	Eggs	Wild/free foods	Rabbits/hares	Honey	Wild fungi	Venison	Fish (freshwater)	Crustaceans (freshwater)	Indoor occupancy	Outdoor occupancy	
987	F	2	0.8																				7534	650	
<b>1 year old age group</b>																									
68-69	M	1		1.0																				2370	130
65,70-73	F	1		1.0																				2370	130
79-83	M	1		1.0																				2370	130
117-118	F	1		1.0																				985	65
121-122	M	1		1.0																				985	65
123-127	F	1		1.0																				985	65
132-135	M	1		1.0																				985	65
531	M	1		0.1	<b>0.4</b>	<b>22.2</b>			<b>5.0</b>	<b>6.5</b>														6756	1460
963	M	1		0.3																				4952	2800
<b>3 month old age group</b>																									
63	F	<1		1.0																				2370	130
64	F	<1		1.0																				2370	130
66	M	<1		1.0																				2370	130
67	M	<1		1.0																				2370	130
115	F	<1		1.0																				985	65
116	F	<1		1.0																				985	65
119	M	<1		1.0																				985	65
120	M	<1		1.0																				985	65

Emboldened observations are the critical group members

### Annex 3. Ratios for determining consumption rates for children

Food group	Ratio child/adult		
	6 - 12 months	10 yr old	15 yr old
Fish	0.375	0.500	0.500
Crustaceans	0.525*	0.700	0.600
Molluscs	0.525*	0.700	0.600
Green vegetables	0.222	0.444	0.556
Other vegetables	0.200	0.500	0.600
Root vegetables	0.375	0.500	0.500
Potatoes	0.292	0.708	1.083
Domestic fruit	0.467	0.667	0.667
Milk	1.333	1.000	1.083
Cattle meat	0.222	0.667	0.778
Pig meat	0.138	0.625	0.750
Sheep meat	0.120	0.400	0.600
Poultry	0.183	0.500	0.667
Eggs	0.600	0.800	1.000
Wild/free foods	0.072	0.440	0.520
Rabbits/hares	ND	ND	ND
Honey	0.789	0.789	0.526
Wild fungi	0.150	0.450	0.550
Venison	ND	ND	ND

ND - No data

\* No MAFF 1998 data were available for these rates. Ratios were derived by scaling the 10 year olds crustaceans and mollusc consumption data



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