

TERMS OF REFERENCE

The inquiry will address the following questions:

1. Is there a material risk to the health of current or future occupants of the Rutherford Buildings¹ from contamination by radioactive or chemically hazardous materials, and if so, what action is required to address this risk?
2. Could there be a material risk to health from future intrusive work undertaken on the fabric of the Rutherford Buildings, and if so, what action is required to address this possibility?
3. Is there any material risk to health from contamination of furniture, furnishings and other articles that have been moved from the Rutherford Buildings to other places?
4. Could contamination of the Rutherford Buildings by radioactive or chemically hazardous materials contribute (or have contributed) materially to disease incidence or mortality in people who have worked in the buildings in the past, and if so, what advice should be given to people who have worked in the buildings in the past?

¹ The term “Rutherford Buildings” is used throughout to encompass all parts of the Rutherford Building and adjoining buildings that were at one time occupied by the Department of Physics, and also their drains and an underground subway linking the Rutherford Building to the John Owens Building.

METHOD OF INVESTIGATION

In order to address the questions set out in the terms of reference, we will need to pull together information on:

1. The identity of hazardous materials that are likely to have contaminated the Buildings. This will come from:
 - a) Knowledge of the work that was carried out by the Department of Physics in the Rutherford Buildings, of the materials that it handled, and of the decay products that can be expected from the radioactive substances that it used (from the reports by John Churcher and colleagues, any archived records of work in the Department of Physics, any information that can be provided by staff who worked in the Department of Physics before 1973, and advice from HPA's Radiological Protection Division (RPD)).
 - b) Records and reports of chemical and radioactive contaminants that have been found in the Buildings (as collated by John Churcher and colleagues or recalled by staff who have previously worked in the Buildings, together with any other information that is held by the University). If the knowledge gathered under a) indicates a need for additional monitoring of the buildings (e.g. because an expected radioactive decay product has not been adequately addressed by the measurements made to date, or some parts of the Buildings have not been monitored sufficiently), this work will be commissioned.
2. Environmental levels of hazardous materials that have been recorded in the Buildings (from the reports by John Churcher and colleagues together with the results of currently ongoing environmental monitoring, any new monitoring that is commissioned, and any other historical data that have not yet been retrieved).
3. Renovation, refurbishment and alterations of the Buildings that have been carried out over the past 60 years, which may have reduced levels of contamination and/or changed the relative importance of different exposure pathways (from records held by the University Estates Department, other University records, and recall of people who have worked in the Buildings in the past).
4. The health hazards (potential adverse health effects) associated with identified contaminants, and the way in which risk and/or severity of these health effects varies according to circumstances and levels of exposure (from the published scientific literature – help with the assessment for radioactive substances will be obtained from HPA RPD, while assistance with the assessment for chemical toxicity may be sought from another appropriate source such as the Health and Safety Laboratory in Buxton). In exploring possible health hazards, particular attention will be given to diseases that have occurred in past occupants of the Buildings and that have been a focus for concern (e.g. cancer of the pancreas, brain cancer).

Inevitably some of the information sought will be incomplete or liable to error, and retrospective assessment of exposure levels will therefore be uncertain. However, the extent of these uncertainties will be estimated and taken into account when drawing conclusions.

One of the drivers for the investigation has been the occurrence of cases of disease such as pancreatic and brain cancer, which people have suggested might be linked

to contamination of the Rutherford Buildings. As indicated above, special attention will be given to these diseases when searching the scientific literature on known hazards of identified contaminants. In addition, using data on approximate numbers of people who have worked in the Buildings, I will make a rough calculation of the expected numbers of cases of these diseases. However, it should be recognised in advance that this calculation will be subject to substantial uncertainty, and is very unlikely to impact on conclusions. In small populations, some disease can be expected to occur more frequently than expected, sometimes substantially, simply by chance. I suggest that more rigorous epidemiological assessment of the rates of disease that have occurred among people who have worked in the Buildings (which would be a major and longer term undertaking), would only be worthwhile where assessment of contaminants indicated the possibility of exposures at levels that could cause measurable increases in mortality or cancer incidence.

ARRANGEMENTS FOR REPORTING

These finalised terms of reference should be freely available in the public domain.

My aim will be to complete the investigation and issue a final report by June 2009. However, this will depend on the time that is needed to accumulate all of the information that is required. It is important that the investigation be thorough and that it does not leave important questions outstanding. If it becomes apparent that completion will be delayed significantly beyond June 2008, I will consider issuing an interim report at that stage. In addition, if it emerges at any stage in the investigation, that urgent action is needed to protect health, that information will be communicated to the University and other relevant parties immediately. In that circumstance, the inquiry would still continue until all of its terms of reference had been addressed.

The final report, when ready, will be shared first with the University and with other interested parties, who will be asked to give an undertaking to respect its confidentiality until it is formally made available to the public at large.

Following publication of the final report, I will make myself available to interact with all interested parties in any further discussion of the way forward.

INTERIM ADVICE FOR PEOPLE WHO HAVE WORKED IN THE RUTHERFORD BUILDINGS

The possibility that people may have been exposed to hazardous pollutants through their work in the Rutherford Buildings has prompted questions about whether they would benefit at this stage from any form of health check.

Health screening of people who do not have symptoms is beneficial in certain circumstances. There must be a sufficiently reliable and safe test that can detect disease before it causes symptoms; and early treatment for disease that is detected in this way must improve the long-term health outcome.

The value of a screening test will depend not only on the intrinsic accuracy of the test method, but also on the prevalence of undetected disease in the population to which it is applied. If the prevalence is low then most of the positive results may be “false positives” resulting from test error. This can then lead to unnecessary worry as well as the risks and discomfort associated with further investigation to refute the screening diagnosis.

Whether early treatment improves long-term health outcome will depend on the disease in question. For a few disorders (e.g. breast cancer, cervical cancer), there are well-established benefits. For many others (e.g. pancreatic and brain cancer), the benefits are questionable.

From the information that is currently available to me, I would not expect people who have worked in the Rutherford Buildings to have a high absolute risk of any disease. For example, even if their risk of brain cancer were 50% above the background rate (and I stress there is no evidence for this at present), their absolute risk of brain cancer would still be low. And of the diseases that might be considered of most concern (lung cancer which is a known hazard of exposure to radon, and cancers of the brain and pancreas because cases are known to have occurred in staff members), none has been found amenable to effective health screening.

Therefore, while this might change as the inquiry progresses, my advice at present is that:

People who have worked in the Rutherford Buildings and who are worried by symptoms should consult their doctor in the normal way. However, there is currently no indication of any need for special health checks in those who have no symptoms.

David Coggon
27 October 2008