Annex 1

Contribution to the Rutherford Lab Investigation

Background

Following 3 cases of pancreatic cancer and 1 case of brain cancer, the staff at Manchester University are concerned about possible health effects from exposure to radioactive and chemical contamination in rooms used formerly by Rutherford until 1919. The Client has initiated an independent review led by Professor Coggon. The Health Protection Agency has been commissioned to assess the radiological hazards and risks. HSL have been asked to assess the health consequences of exposure to mercury contamination in some rooms.
The terms of reference for work by HSL, detailed below, have been developed by HSL and agreed with The Client and Professor Coggon.

Scope of Work

HSL will address the following questions as part of the inquiry into the Rutherford Buildings:

1. What are the health consequences reported in the peer reviewed literature following exposure to mercury vapour? In particular, HSL will:
   - Assess the evidence regarding health effects of mercury vapour, and any associated contaminants.
   - Review the relationship between risk and adverse outcomes to exposure levels in air or biological materials (urine, blood, hair etc).
   - Consider issues relating to time to clear any toxic products form the body.
2. Could the levels of exposure to mercury vapour reported in the Rutherford Buildings lead to health consequences? In particular, HSL will:
   - Collate the evidence available regarding exposure to mercury and related toxic compounds in the affected areas of the Rutherford Buildings.
   - Make an assessment of risks to health past and present of these exposures (using a “worst case scenario” model).
   - Consider any uncertainties and/or gaps in the information available.
   - Recommend additional testing (as appropriate) to address any gaps identified above.
3. What remedial actions might be required?

Outline of Work

The work will concentrate on exposure to mercury. Other chemical hazards have not yet been identified but could be included later at an extra cost to The Client.

Task 1 Review of the health consequences from exposure to mercury

Peer-reviewed scientific literature will be systematically reviewed for information on the health consequences (including cancer) from exposure to mercury. The literature on mercury is extensive and so the study will be restricted to recent expert reviews, where available, and will focus on chronic/repeated (e.g. occupational) exposure rather than acute (accidental poisonings). The review will look at the elimination of mercury and the dose response relationship between exposure to mercury and its consequences. It will seek information on levels of mercury in tissues commonly used for biological monitoring of exposure and also look for biological monitoring guidance values to aid the interpretation of results. The review will be confined to metallic mercury (the type of mercury contamination found in the Rutherford building) and will not look at exposure to organic mercury (the type found in dietary sources).

Task 2 Risk assessment of exposure to mercury

Past and present levels of exposure to mercury found in the Rutherford building will be compared to the dose-response relationships identified in task 1 to assess the health risks. Levels of mercury identified in the Cassella study prior to remediation work will be used as a 'worst case'.

Task 3 Suggestions for further work

Suggestions for further work

Deliverables

A report summarising the outcome of tasks 1 – 3 will be provided to The Client.

Timescales and Milestones

Assuming a start date in early March the work should be completed by August 2009. Brief milestone reports will be made by phone or email to The Client on completion of tasks 1 & 2 and a final report will follow at the end of task 3.