Introduction

- Issues at the crux of the challenge
- Previous UK methods
- International approaches
- Case studies
- UK work in progress
Risk Perception v Reality

- Ubiquitous substance
- Naturally occurring
- Historical extensive use
- Likely typical public exposure
- 1 fibre could kill…but…
Historical Ubiquity
Health Effects

- Pleural plaques
- Asbestosis
- Pleural fibrosis
- Lung cancer
- Mesothelioma
Challenging issues for RA

- Estimating exposure
- Toxicological benchmark for unacceptable exposure
Current UK Guidance

- “Guideline” value of 0.001% wt/wt
- Practical guidance on survey, analysis and treatment options
- IOM 1988 research
HSE Guidance

- Protection of Workers and the General Public During the Development of Contaminated Land, 1991
- MDHS100, 2001
- HSG248, 2006
International Approaches

- Australian
- US
- Dutch
Australia

- 0.001% (10 mg/kg) to classify non-contaminated sites
- threshold of 0.01% (100 mg/kg) proposed as a health investigation trigger
- Typical clean-up criteria varied from 0.25% to 1%
US

- US EPA threshold was set at 1% back in 1973
- Vermiculite Mine, Libby, Montana
Dutch

- Dutch Intervention Value 0.001% (10 mg/kg) for highly stabilised asbestos in demolition aggregate and soils
- LOD for loosely stabilised asbestos
- 2003 proposals
  - Threshold of 100 mg/kg for friable and 1000 mg/kg for non-friable asbestos (0.01% to 0.1%)
  - 0.001% (10 mg/kg) respirable asbestos
  - airborne concentration 1000 f/m³ (0.001 f/ml)
Risk Management Options

- Site specific
- Avoid generation of airborne asbestos fibres
- Containment in-situ
- Removal – last resort
Case Studies

- Nature Reserve
- Residential Estate
- Ex-situ Soil Treatment
Nature Reserve
Residential Housing Estate

- High density residential estate
- Communal landscaped areas
- Trace asbestos fibres detected in soil sample
- Minimal bare soil
- Further testing of soil and indoor dust
- PLM and TEM analytical methods
Soil Remediation

- Ex-situ soil treatment technique
- Waste exemption for re-use on site
- Suitable for use, risk-based target
- Validation of stockpiles
Ex-situ soil treatment
Current EA sponsored HSL Research

- HSE, EA, WATCH and HPA involvement
- Work in progress
- Focusing on “dustiness test”
- Expanded to include surveys and risk assessment
Challenges for Guidance

- Toxicological risk thresholds
- Respirable fibre/airborne dust ratio
- Fibre dispersion from soil
- Practicalities of screening process
- Background exposure levels
Progress so far

- “Common sense” approach
- Staged assessment
- Informal international group
- QRA still being debated
- Recent international studies
- No timetable for publication
Current Concept

- Staged, risk based
- Haz waste
- Microscopy
- Dustiness test
- Site tests

Haz waste?

Visible fibres?

PCM analysis

Dustiness

Remediate

Low risk

DQRA
Thank You!

- Thoughts? Please email me...

Simon Cole
Technical Director – Human Health Risk Assessment UK&I
URS Corporation Ltd
Simon_cole@urscorp.com