The Programme

- Why this particular seminar?

- Is there something wrong in how we plan/organise our asbestos remediation jobs?

- I suggest there is.
Current Asbestos Work

- Appoint Term Contractors for Asbestos Removal and Asbestos Testing.

- Give a job to the Removal Contractor: they organise the whole thing – including air testing.

- A problem?
A Problem?

- Sometimes – yes.
- Some contractors and testing labs have unrealistic views of REAL risk, leading to “over the top” work procedures.
- Two examples:
  - School attic, brown field site.
The ACS View

- A different approach based on a completely independent Project Manager.

- ACS have a team of highly qualified, well trusted scientists with an enormous amount of experience: 38 years, over 95,000 asbestos contracts.

- Work procedures based on REAL risk
The ACS View

To carry out asbestos remediation jobs safely, legally and at best financial cost they must be designed on the basis of **REAL** risk and not **PERCEIVED** risk.
Does it Work?

- “asbestos debris” found in an attic on top of blown fibre glass.

- Contractor advised removal of all fibre glass and environmental clean (£100 000).

- ACS re-surveyed, re-scoped and devised a fully acceptable cleaning prog. based on REAL risk for just under £10 000.
Does it Work?

Major construction project on brown field site

- Cost of removal and disposal of asbestos contaminated soil estimated at £2m by Contractor.

- ACS negotiated with HSE and SEPA, redesigned the project, re-classified the waste.

- Total savings of just over £1.75 million
REAL risk v PERCEIVED risk

- What has happened to the concept of REAL risk in the last few years?
- One fibre kills?
What is Asbestos?

A FAMILY NAME GIVEN TO THE FIBOUS FORMS OF A GROUP OF NATURALLY OCCURRING MINERAL SILICATE FIBRES.
Why was it used?

- Good insulator against: Heat, electricity, noise, vibration.
- Impervious to attack by: Acid, weather, vermin
- Cheap to produce and import
Boiler for British Railways Standard Class 4 2-6-4-T mixed traffic locomotive fitted with Pluto blue asbestos mattresses
The Black Triangle
Clydebank Blitz
13/14 March 1941
Attractive home safeguarded with modern asbestos siding, fireproof, rotproof, and termite-proof.
COMMON LOCATIONS IN PUBLIC SECTOR HOUSING
18c Asbestos tape flash guards in a fuse box.
Who is most affected?

- Not so much of a problem in privately built houses/buildings.
- A significant problem in publicly funded housing stock/buildings.
- Therefore, a significant problem for L.A., H.A., NHS MOD, Educational Establishments especially when built in 1950’s, 60’s, 70’s.
Common locations in PUBLIC SECTOR housing

- Asbestos Cement
- Sprayed asbestos
- Insulation boards
- Lagging
- Paints & Plasters
- Boiler
- Cooker
- Heater
- Radiant Panel
Exposure to Asbestos?

- Most of us were born in a hospital
- Lots of us were brought up in social housing.
- All of us went to school.
- A lot of us went to College or University
- Lots of us use sports centre, libraries, hospitals, clinics.
- All of us are exposed to vehicles.
The Result (Prof Seaton, Aberdeen University)

- We are surrounded by asbestos products.
- Post mortem studies show that more than 60% of people in the UK have asbestos fibres in their lungs at point of death (100% in our urban environments)
- It was NOTHING to do with the cause of death.
Let us investigate this
HSE Projections for England & Wales

<table>
<thead>
<tr>
<th>TYPES OF DEATH</th>
<th>NUMBERS (p.a.)</th>
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</thead>
<tbody>
<tr>
<td>HEART DISEASE</td>
<td>165 000</td>
</tr>
<tr>
<td>CANCER</td>
<td>140 000</td>
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<tr>
<td>RESPIRATORY DISEASE</td>
<td>56 000</td>
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<tr>
<td>HOME ACCIDENTS</td>
<td>4 500</td>
</tr>
<tr>
<td>SUICIDES</td>
<td>4 000</td>
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<tr>
<td>ROAD ACCIDENTS</td>
<td>3 000</td>
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<tr>
<td>WORK ACCIDENTS</td>
<td>174</td>
</tr>
<tr>
<td>ASBESTOS DEATHS TO 2010</td>
<td>2 000</td>
</tr>
</tbody>
</table>
REAL V Perceived risk

- There are 60,000,000 people in the UK
- At least 60% have asbestos fibres in their lungs (Prof Seaton)
- There are at least 36,000,000 people in the UK with asbestos fibre in their lungs

- If ONE fibre kills then ALL of these would die of asbestos related disease
REAL V Perceived risk

- If ONE fibre kills, at least 36 000 000 die as asbestos related disease.
- On average 30 years between exposure and death
- Therefore at least 1 200 000 asbestos related deaths per annum
REAL V Perceived risk

- Theory 1 200 000
- Experiment 2 000

- The Scientific Age……compare
- One of them is wrong
- The experimental results come from post mortem studies: must be correct
- Prediction must be wrong i.e. theory is wrong
REAL V Perceived risk

- Dr Gibb, May 2011, report for evidence in an RJW case at the Court of Session, Edinburgh.

- Carried out e.m studies on lung tissue following a mesothelioma death.

- Found 102 000 000 asb. fibres
CONCLUSION

- ONE fibre kills?
- I think not!!!!!!
REAL Risk

- If you cut asbestos cement the airborne fibre concentration is usually < 0.5 f/cc

- To get over 100 million fibres in your lung you would have to work on it all day, every day for more than 250 yrs
The Risk

Risk depends on the amount of fibres you can breath in i.e. the airborne fibre concentration in f/cc.

The Clearance Indicator is “less than 0.010 f/cc”
The Risk

- Limpet: 400 – 1000 f/cc, HIGH
- AI: 20 – 400 f/cc, HIGH
- AIB: 2 – 20 f/cc, MED
- AC: usually less than 0.5 f/cc, LOW
- AVT: usually less than 0.1 f/cc, LOW
A little revision

Real risk v Perceived Risk

Perceived risk: one fibre kills

Real risk: 100,000,000 fibres
International Expert meeting on Asbestos, Asbestosis and Cancer was held in Helsinki on 20-22 January 1997.

- cumulative fibre dose, i.e. what is breathed in (f/ml) multiplied by how long it is breathed in for (yrs),

- It was accepted that the threshold dose for the development of asbestosis and lung cancer was **25 f.yrs/ml.**
## HSE Guidance Note EH 35

<table>
<thead>
<tr>
<th>Asbestos Insulation</th>
<th>Fibre/ml</th>
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<tbody>
<tr>
<td>De-lagging dry</td>
<td>100-400</td>
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</table>

### Asbestos Insulating Board

<table>
<thead>
<tr>
<th>Activity</th>
<th>Fibre/ml</th>
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</thead>
<tbody>
<tr>
<td>Drilling vertical structures</td>
<td>2 - 5</td>
</tr>
<tr>
<td>Drilling overhead</td>
<td>4 - 10</td>
</tr>
<tr>
<td>Hand sawing</td>
<td>5 – 12</td>
</tr>
<tr>
<td>Machine sawing – jig saw</td>
<td>5 - 20</td>
</tr>
<tr>
<td>Machine sawing – circular saw</td>
<td>&gt; 20</td>
</tr>
</tbody>
</table>
HSE Guidance Note EH 35

Asbestos Cement

Machine drilling < 1
Hand sawing < 4
Machine sawing – Jig saw 2 - 10
Machine sawing – circular saw 10 - 20
Machine sawing – Abrasive disc cutter < 25
Scenarios

(How long to hit the Helsinki Criteria?)

removing limpet  1000 f/ml  45 hours
lagging                  200 f/ml   1.8 months
AIB drill                      2 f/ml   12.5 yrs
AC  drill                    <4 f/ml   > 25 yrs

Typical site readings

  0.1 f/ml   250 yrs

Clearance indicator < 0.01 f/ml   > 2500 yrs
The message

Before you plan/agree to an asbestos remediation job:

- Consider the REAL risk.
- Look up EH35
- Consider the exposure times
- Do a simple sum
- THINK!!
Questions – only easy ones!!

Contacts

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