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Outcome of the SoBRA summer workshop – asbestos in soil

Lucy Thomas
17-12-13

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Summer workshop objective

- to inform the human health risk assessment chapter of the JIWG Code of Practice for asbestos in soils

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Presentations

Remediation & Reuse of Materials

Dr Mike Higgins
Managing Director - Land Remediation

Hydrock

Public Health England

Asbestos : Review of toxicology & options for human health risk assessment

SoBRA Asbestos in Soil Risk Assessment Workshop
Birmingham, 27 June 2013

George Kowalczyk, Regional Toxicologist,
CRCE Birmingham/Manchester

Legal aspects/case law and how this might influence risk assessment

Martin Stear BSc DipOH CFFOH
Chartered Occupational Hygienist

Workplace Environment Solutions Limited

SoBRA Summer 2013 Workshop

Joint Industry Working Group

Industry Code of Practice
Asbestos in Soils and C&D Materials

Birmingham, 27th June 2013

Asbestos In Soils

What do I need to know?

Seamus Lefroy-Brooks
June 2013

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Director, IEG Technologies UK Limited
Chair, Joint Industry Working Group
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1

Asbestos analysis

A brief overview

RSK

John Parker

URS | Approaches to exposure assessment

SoBRA Summer 2013 workshop
Risks to human health from asbestos in soil

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Afternoon discussion groups

1. Site investigation support
   - data requirements and laboratory methods
2. Risk evaluation for remediation, re-use and cross boundary issues
3. Risk evaluation for existing / future land use exposure scenario

Note: toxicology specifically not considered owing to insufficient people likely to attend with sufficient knowledge of this topic area

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1. Site investigation support

- Objective
  - identify and define key data requirements, methods and practices (SI and lab) needed to support a consistent decision making process
- Risk assessment without the data
  - Site & laboratory staff
  - What is reasonable PPE
  - When is notification required
- Practical challenges of analysis
  - Preparation consistency
  - Comments permitted under accreditation
  - Economic cost

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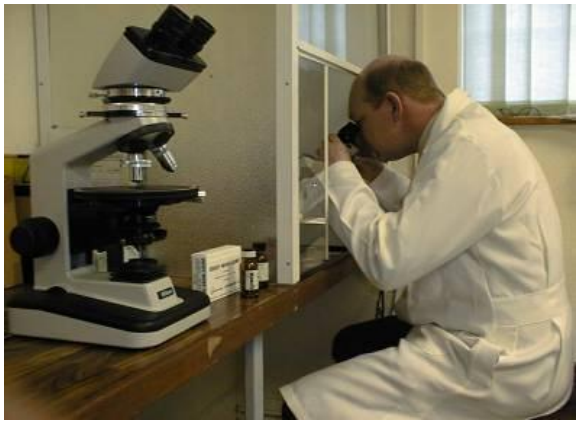
Solutions for site investigation support

- Consistency & transparency
- AGS guidance
- Compliance with CAR 2012 – RAMS
- SCA blue book
- Request analyst opinion
  - Fibre type
  - Condition



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2. Remediation group

- Objective
  - identify key decision points, methods / practices / procedures & standards needed to implement asbestos in soil remediation effectively, efficiently and safely
- 2 types of project
  - Asbestos is the reason for remediation
  - Asbestos is 'unexpected'
- CSM, SI method and project team experience is key

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3. Exposure scenario groups

- Objective
  - review existing decision algorithms, decide whether a UK algorithm should be qualitative, quantitative or combination & identify key elements
- Simplicity and consistency
- Flow chart / exclusion matrices
  - Soil type, climate, end use/activity, asbestos depth, form, type, condition

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SoBRA asbestos in soil subgroup

- Assist with
  - workshop report write up
  - development of exposure scenario evaluation methods
- Group agreed flowchart / exclusion matrices must be scientifically robust
- Dust may prove a reliable and easier measurement than asbestos fibres

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Sub-group developments

- Exposure scenario development
- Initial assessment framework
  - Following Nuclear Industry Group model
  - For Qualitative Risk Assessment
- Various scenarios (6)

		Consequence (Defined by requirement of each stage)			
		Minor	**Mild**	**Moderate**	**Severe**
Probability (Constant definition as per table 2)	**Very Unlikely**	Negligible risk	Negligible risk	Low risk	Medium risk
	Unlikely	Negligible risk	Low risk	Medium risk	Medium risk
	Possible	Low risk	Low/medium risk	Medium risk	High risk
	Likely	Low risk	Medium risk	High risk	Very high risk
	High Likelihood	Low/medium risk	Medium risk	High risk	Very high risk

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Sub-group developments

Robust and simplistic assessment must be based on science

1. Review of Dutch empirical data
2. UK empirical data collection
3. Additional needs
   - background
   - activity specific dust
   - asbestos in air

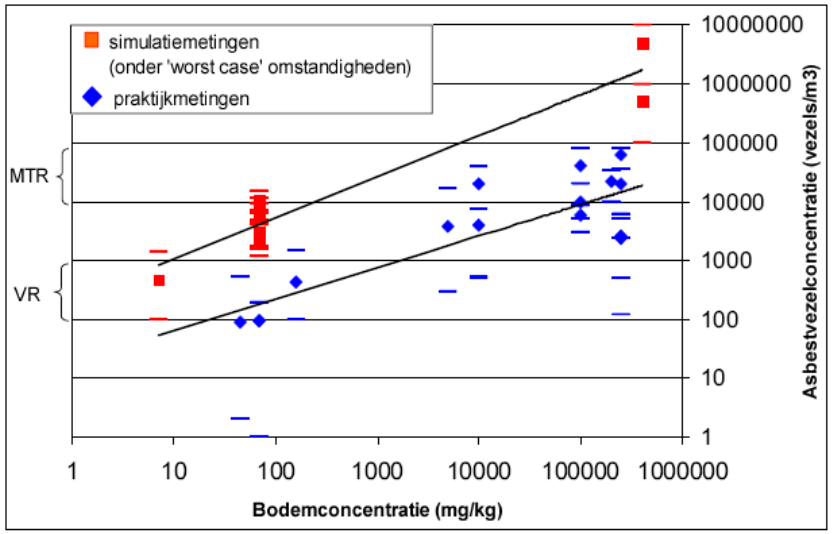

Figure 4.1 RIVM 711701034/2003

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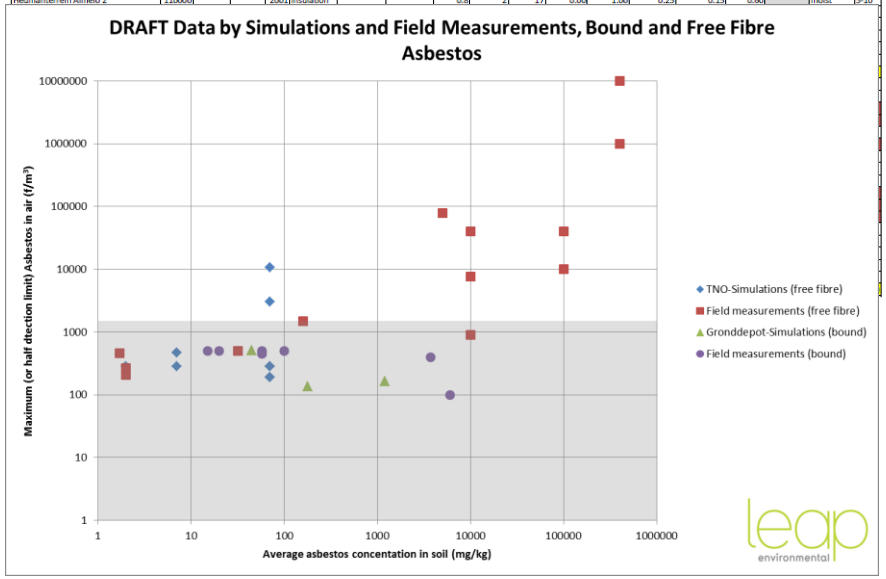
1. Review of Dutch data

Data sourced from RIVM Report A Tiered Approach for the Assessment of the Human Health Risks of Asbestos in Soils (2008) Appendix 4

Location	About the site			Date	Asbestos materials			Asbestos concentrations			Structure		Asbestos Minerals			Soil Type		
Name	Area	Volume	Type	Year	1	2	3	Min	Average	Max	solid	not-solid	Chrysotile	Crocidolite	Amosite	soil	moisture	temp
Fabriekshal Schijf	2500			2002	AC	weathered A	fibre bundle	78	989	1900	0.16	0.84	0.92	0.08	0.00	sand	moist	10-15
Fabrieksterrein Schijf	2500			2002	AC	weathered A	fibre bundle	530	3605	6700	0.43	0.57	0.92	0.08	0.00	clay	moist	10-15
Gronddepot Osdorp 1				2002	AC				1200		1.00	0.00	0.78	0.12	0.10	sand	dry	20
Gronddepot Osdorp 2				2002	AC				45		1.00	0.00	1.00	0.00	0.00	sand	dry	20
Gronddepot Osdorp 3				2002	AC				180		1.00	0.00	0.79	0.21	0.00	sand	dry	20
Woonwijk Goor 1				2002	turnings	pulp-like		810	1705	2600	0.00	1.00					frozen	0-5
Woonwijk Goor 2				2002	turnings	pulp-like		0.6	10.3	20							frozen	0-5
Woonwijk Goor 3				2003	turnings	pulp-like	fibre bundles		620		0.53	0.47	0.45	0.55	0.00		0.05	20
Speelterrein Ijmuiden	3750			2000	AC	soft board	insulation	16	402	800	0.50	0.50			1.00	sand	dry	
Terrein Klarendal	1500			2001	AC			0	58	250	1.00	0.00	1.00	0.00	0.00	topsoil	dry	
Terrein Klarendal	1500			2001	AC			0	58	250	1.00	0.00	1.00	0.00	0.00	topsoil	moist	
Terrein Klarendal	1500			2001	AC			16	58	250	1.00	0.00	1.00	0.00	0.00	topsoil	moist	
Parkeerterrein Beuningen	10000			2001	AC	soft board		0	32	96	0.75	0.25	0.75	0.00	0.25	gravel	moist	
Depots Arnhem 1		33000		1999	flooring	soft board	packings	0	32	194	0.00	1.00	0.50	0.00	0.50	gravel	moist	
Depots Arnhem 2		33000		1999	flooring	soft board	packings	0	32	194	0.00	1.00	0.50	0.00	0.50	gravel	moist	
Hedmanterrein Almelo 1	110000			2001	insulation			0.8	2	17	0.00	1.00	0.25	0.15	0.60		moist	5-10
Hedmanterrein Almelo 2	110000			2001	insulation			0.8	2	17	0.00	1.00	0.25	0.15	0.60		moist	5-10



- Translation complete
- Quality reviewed (not activity specific)
- Started to reproduce graphs
- and begun to add UK data

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2. UK empirical data collation

22565-UK empirical data format

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3. Data needs

- Little activity specific dust generation data
  - IAQM and Major of London Guidance only look at broad categories and do not define PM10 concentrations
  - USEPA AP 42, Compilation of Air Pollutant Emission Factors may allow some semi quantitative assessment of some activities but needs a lot of site specific inputs (e.g. distance travelled by bull dozers – needs calibration
- Please help us by providing your data!

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We look forward to receiving your data
Thank you very much for listening!