

COC/Benchmarks Committee Update (4/8/02)

Introduction

- 1) COC/Benchmarks Committee created by Indoor Air Taskforce Working Group
 - Cross-agency representation (EPA, ATSDR, NYSDOH, NYCDOH, OSHA)
 - Tasked with identifying COCs and establishing health-based screening levels for the indoor environment

Basis for Identifying COCs

1) Similar to approach employed for identifying COCs in the ambient air

- Historical information on building collapses/fires
- Review (qualitative toxicity/concentration screen) of available sampling data

Status of COC List

1) 7 contaminants tentatively identified:

Asbestos
Fibrous Glass
Refractory Ceramic Fibers
Silica
Dioxin
PAHs
Lead

(Mold - secondary contaminant)

What's off the List

- 1) Many contaminants were either routinely ND or found in trace amounts
- 2) Categorical decision to delete all VOCs
- 2) Focus on select group of "high profile" chemicals for specific justification to delete:

Chemical	Why	Why Not
Benzene	high concentrations (>PEL) on pile	mostly ND at perimeter of site
PCBs	historical lightening rod	serial air sampling all ND
Mercury	Port Authority Police screening	trace amounts in air/dust
Chromium	commonly detected in air sampling	contamination of sample blanks
PM (2.5 & 10)	dust cloud	numerous indoor sources

Benchmark Development Approach

1) Expanded from ambient air monitoring program → need to address long-term as well as acute/subchronic exposures

- Tiered Approach

Tier I - action level

Tier II - review

Tier III - clearance

- Used existing regulations/guidance where applicable

Examples:

NAAQS for Pb (1.5 ug/m^3) - action level for indoor air

HUD Pb Standard for floors (40 ug/ft^2) - action level for interior dust

→ Otherwise develop risk-based screening levels

Tier I > E-04 cancer risk x 1 yr exposure duration

Tier II E-04 x 1 yr - E-04 x 30 yr

Tier III < E-04 x 30 yr (or background)

Lead (settled dust)

Tier	Screening Value	Basis	Action
I	> 40 ug/ft²	1) HUD standard for floors 2) Residential Lead Hazard Standard (TSCA Section 403)	Aggressive cleaning - if levels persist, take additional action to reduce exposure
II	25 ug/ft² (or background) - 40 ug/ft²	HUD screening level for floors	Maintain recommended (diligent wet/HEPA) cleaning methods -consider additional monitoring
III	< 25ug/ft² (or background)	HUD screening level or local background	No further action

Lead (indoor air)

Tier	Screening Value	Basis	Action
I	> 1.5 ug/m³	NAAQS (intended to keep 99.5 % of childhood population below 30 ug/dl)	Aggressive cleaning - if levels persist, take additional action to reduce exposure
II	.1 ug/m³ - 1.5 ug/m³	.1 ug/m³ - UBK Lead Model default value for urban background	Maintain recommended (diligent wet/HEPA) cleaning methods -consider additional monitoring
III	.1 ug/m³ (or background)	Determination of local background	No further action

***PAHs (settled dust)**

Tier	Screening Value	Basis	Action
I	>9 mg/m²	**Risk-based screening level for residential setting (E-04 x 1yr)	Aggressive cleaning - if levels persist, take additional action to reduce exposure
II	.3 mg/m² - 9 mg/m²	.3 mg/m² - **Risk based screening level for residential setting (E-04 x 30 yr)	Maintain recommended (diligent wet/HEPA) cleaning methods -consider additional monitoring
III	<.3 mg/m² (or background)	Determination of local background	No further action

* benzo(a)pyrene equivalents

** Methodology based on EPA Region III assessment of wipe sample data

***PAHs (indoor air)**

Tier	Screening Value	Basis	Action
I	>6 ug/m³	Risk-based screening level for residential setting (E-04 x 1yr)	Aggressive cleaning - if levels persist, take additional action to reduce exposure
II	.2 ug/m³ (or background) - 6 ug/m³	.2 ug/m³ - risk based screening level for residential setting (E-04 x 30 yr)	Maintain recommended (diligent wet/HEPA) cleaning methods -consider additional monitoring
III	< .2 ug/m³ (or background)	Determination of local background	No further action

* benzo(a)pyrene equivalents

***Dioxin (settled dust)**

Tier	Screening Value	Basis	Action
I	> 70 ng/m²	**Risk-based screening level for residential setting (E-04 x 1yr), 1/10 average dietary intake	Aggressive cleaning - if levels persist, take additional action to reduce exposure
II	2 ng/m² (or background) - 70 ng/m²	2 ng/m² - **Risk based screening level for residential setting (E-04 x 30 yr)	Maintain recommended (diligent wet/HEPA) cleaning methods -consider additional monitoring
III	< 2 ng/m² (or background)	Determination of local background	No further action

*based on proposed dioxin cancer slope factor

** Methodology based on NYSDOH assessment of office building in Binghamton, NY

Dioxin (indoor air)

Tier	Screening Value	Basis	Action
I	$>.03 \text{ ng/m}^3$	*Risk-based screening level for residential setting (E-04 x 1yr)	Aggressive cleaning - if levels persist, take additional action to reduce exposure
II	$.001 \text{ ng/m}^3$ (or background) - $.03 \text{ ng/m}^3$	$.001 \text{ ng/m}^3$ - * Risk based screening level for residential setting (E-04 x 30 yr)	Maintain recommended (diligent wet/HEPA) cleaning methods -consider additional monitoring
III	$< .001 \text{ ng/m}^3$ (or background)	Determination of local background	No further action

*based on proposed dioxin cancer slope factor

Asbestos

Level	Recommended actions	Comments
Air level: $> 0.01 \text{ f/cc}$ *	Evaluate the need to remove sensitive individuals from the environment	Screening value in air set at a level where short term exposures (≤ 1 year) may result in exposures which contribute to
Settled Dust level: $> 100,000 \text{ f/cm}^2$	Evaluate conditions in the area including representativeness of air samples, fibrous glass dust levels and loading. Take actions to reduce	Settled dust threshold is to protect to at least a 1×10^{-4} risk estimate for a one year exposure. Air concentrations estimated for different activities using a K factors

Air level: NYC background - 0.01 f/cc * Or	Evaluate conditions in the area including representativeness of air samples, fibrous glass dust levels and loading.	For those areas where air levels would not warrant removal of sensitive individuals, but are above the 0.001 f/cc, continued cleaning and evaluation is prudent.
Settled Dust level: 10,000 f/cm² To 100,000 f/cm²	If air samples were not taken, then appropriate air sampling should be conducted to determine if fiber levels are elevated. Take actions to reduce exposures. - clean area - resample - ongoing cleaning	Settled dust threshold is to protect to at least a 1×10^{-4} risk estimate for a 30 year exposure. Air concentrations estimated for different activities using a K factors based on Millette's work on asbestos. Risk estimate is based on estimates of air levels, and duration of exposure for different activities. (10,000f/cm² corresponds to a 1×10^{-4} risk for a 30 year exposure)

*Tem
 standard
 70 structures*

Air level: $\leq$ NYC background And Settled Dust level: $\leq$ background or 1000 f/cm ²	No action required	
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Mold (qualitative assessment)

Based on visible evidence → look for evidence of water damage and moldy odors

Outstanding Issues

1) Resolve risk assessment methodology based on contaminant loading data (NYS vs R III)

2) Need for robust background characterization → consequent risk management decision:
should clearance criteria be the higher or the lower of the background/risk-based value

3) Resolve candidate COC list for building materials (lime, gypsum, etc.)

4) Continue work on WTC dust "fingerprinting" effort (e.g., fibrous glass, pH, high temperature combustion byproducts)

what is WTC related / what comparisons to prior 9/11