

COC

Avaltroni, Robert
From: Gilsenan, Michael
Sent: Monday, April 01, 2002 3:04 PM
To: Radhakrishnan, Krish; Theodorellys, Penny
Cc: Avaltroni, Robert; Chapin, Diana 001; Sturcken, Charles 001
Subject: FW: draft screening levels for asbestos, FG and silica in indoor air and settled dust

Krish- pls. comment on attached. I think we need to explain to Diana what this means to Asbestos in the greater scheme of things, assuming EPA makes these the standards. I don't know if EPA could establish standards(bench. arks) for WTC only.

—Original Message—

From: DeVoney, Danielle [mailto:dld7@cdc.gov]
Sent: Monday, April 01, 2002 1:48 PM
To: DeVoney, Danielle; 'Maddaloni.Mark@epamail.epa.gov';
'grevatt.peter@epamail.epa.gov'; 'smith.terry@epamail.epa.gov';
Rodenbeck, Sven; 'rlc07@health.state.ny.us'; 'kcarlino@health.nyc.gov';
'laposta.dore@epamail.epa.gov'; 'david.ippolito@csha.gov';
'dan.crane@osha.gov'; 'njeffery@health.nyc.gov';
'girman.john@epamail.epa.gov'; 'Schaum.John@epamail.epa.gov'; 'Randi J.
Walker'; 'Patricia M. Fritz'
Cc: 'Callahan.Kathy@epamail.epa.gov'; 'Salkie.Richard@epamail.epa.gov';
'Rotola.Joe@epamail.epa.gov'; Cooper, Barbara; Lee, Carolyn V.
(Virginia); Neurath, Sue; Wilder, Lynn
Subject: RE: draft screening levels for asbestos, FG and silica in
indoor air and settled dust

Hi -

I ran some quick calculations for risk combining air and dust numbers, and integrated them into a screening level table. this assumes protecting for a 1/10,000 risk for one year for the upper tier, and the same for 30 years in the lower tier.

This is a first attempt on risk number, different exposure assumptions, and K values would yield slightly different results. I'm providing this as a basis for discussion. If we like the approach we can refine the risk calculations appropriately. Also, I've used a K factor of 1×10^{-7} for "daily activity" - although this works well with the math, we may want to refine that number also.

thanks,
danielle

—Original Message—

From: DeVoney, Danielle
Sent: Monday, April 01, 2002 11:58 AM
To: 'Maddaloni.Mark@epamail.epa.gov', grevatt.peter@epamail.epa.gov;
smith.terry@epamail.epa.gov; Rodenbeck, Sven; rlc07@health.state.ny.us;
kcarlino@health.nyc.gov; DeVoney, Danielle; laposta.dore@epamail.epa.gov;
david.ippolito@osha.gov; dan.crane@osha.gov; njeffery@health.nyc.gov;
girman.john@epamail.epa.gov; Schaum.John@epamail.epa.gov; Randi J.
Walker; Patricia M. Fritz

DRAFT COC Airborne Screening Levels

April 1, 2002

Asbestos - all types taken together

Level	Recommended actions	Comments
Air level: > 0.01 f/cc * Settled Dust level: > 100,000 f/cm²	Evaluate the need to remove sensitive individuals from the environment Evaluate conditions in the area including representativeness of air samples, fibrous glass dust levels and loading. Take actions to reduce exposures. - clean area - resample - ongoing cleaning	Screening value in air set at a level where short term exposures (≤ 1 year) may result in exposures which contribute to 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 based on Millette's work on asbestos. Risk estimate is based on estimates of air levels, and duration of exposure for different activities. (100,000 f/cm² corresponds to a 3×10^{-5} risk for a one year exposure)
Air level: NYC background - 0.01 f/cc * Or Settled Dust level: 10,000 f/cm² To 100,000 f/cm²	Evaluate conditions in the area including representativeness of air samples, fibrous glass dust levels and loading. 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	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 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. (10,000 f/cm² corresponds to a 1×10^{-4} risk for a 30 year exposure)
Air level: $\leq$ NYC background And Settled Dust level: $\leq$ background or 1000 f/cm²	No action required	

* Fibers with length > 5 μ m with an aspect ratio $\geq 3:1$, as defined in the ACGIH TLV.

Air concentrations measured by PCM, NIOSH 7400, confirmed by SEM.

2 Cleaning	10000	1.0E-06	1.00E-02	70	50	2	0.011416	2.63E-05	2.47E-04
------------	-------	---------	----------	----	----	---	----------	----------	----------

Higher fiber loading, 100,000 f/cm2

Scenario	Activity	loading f/cc	K factor	Air level	Years	days/year	hours/day	TWF	Contribution to Risk	
1 Year exposure										
	1 Daily activi	100000	1.0E-07	1.00E-02	1	350	24	0.013699	3.15E-05	
	2 Cleaning	100000	1.0E-06	1.00E-01	1	50	2	0.000163	3.75E-06	3.53E-05
30 Years exposure										
	1 Daily activi	100000	1.0E-07	1.00E-02	30	350	24	0.410959	9.45E-04	
	2 Cleaning	100000	1.0E-06	1.00E-01	30	50	2	0.004892	1.13E-04	1.06E-03
70 Years exposure										
	1 Daily activi	100000	1.0E-07	1.00E-02	70	350	24	0.958904	2.21E-03	
	2 Cleaning	100000	1.0E-06	1.00E-01	70	50	2	0.011416	2.63E-04	2.47E-03

Contribution to risk of various asbestos dust levels

Risk = Conc(f/cc) * TWF * Slope factor

TWF is weighting factor for partial exposure (less than 70 years, 24 hrs a day)

Slope factor of 0.23 f/cc used over a 70 year exposure

Low Fiber loading 1000 f/cm2

Scenario	Activity	loading f/cc	K factor	Air level	Years	days/year	hours/day	TWF	Contribution to Risk	
1 Year exposure										
	1 Daily activi	1000	1.0E-07	1.00E-04	1	350	24	0.013699	3.15E-07	
	2 Cleaning	1000	1.0E-06	1.00E-03	1	50	2	0.000163	3.75E-08	3.53E-07
30 Years exposure										
	1 Daily activi	1000	1.0E-07	1.00E-04	30	350	24	0.410959	9.45E-06	
	2 Cleaning	1000	1.0E-06	1.00E-03	30	50	2	0.004892	1.13E-06	1.06E-05
70 Years exposure										
	1 Daily activi	1000	1.0E-07	1.00E-04	70	350	24	0.958904	2.21E-05	
	2 Cleaning	1000	1.0E-06	1.00E-03	70	50	2	0.011416	2.63E-06	2.47E-05

Moderate Fiber loading, 10,000f/cm2

Scenario	Activity	loading f/cc	K factor	Air level	Years	days/year	hours/day	TWF	Contribution to Risk	
1 Year exposure										
	1 Daily activi	10000	1.0E-07	1.00E-03	1	350	24	0.013699	3.15E-06	
	2 Cleaning	10000	1.0E-06	1.00E-02	1	50	2	0.000163	3.75E-07	3.53E-06
30 Years exposure										
	1 Daily activi	10000	1.0E-07	1.00E-03	30	350	24	0.410959	9.45E-05	
	2 Cleaning	10000	1.0E-06	1.00E-02	30	50	2	0.004892	1.13E-05	1.06E-04
70 Years exposure										
	1 Daily activi	10000	1.0E-07	1.00E-03	70	350	24	0.958904	2.21E-04	