#239

TABLE 1

Airborne Concentrations of Asbestos Fibers In 40 General Occupancy Buildings

Study #	Description	Envir. type	Source	$\bar{x}$ F/cc	R F/cc	S F/cc	n
1	13 story office	Suburb	sprayed insulation	0.098	0-0.78	0.27	8
2	14 story office	Urban	sprayed insulation	0.033	0-0.35	0.05	43
3	15 story hospital	Urban	sprayed insulation	0.032	0.0046-0.089	0.048	3
4	2 story box manuf.	Urban	sprayed insulation	0.029	0.007-0.049	0.014	9
5	3 story univ. theater etc.	Rural	sprayed insulation	0.21	0.009-2.95	0.62	22
6	1 story univ. gym	Rural	sprayed insulation	0.0016	0-0.0032	0.0013	20
7	2 story high school	Suburb	sprayed insulation	0.02	0.008-0.031	0.0078	12
8	2 story school gym	Suburb	sprayed insulation	0.0017	0-0.0073	0.0028	9
9	12 story univ. & teach. hosp.	Suburb	sprayed insulation	0.006	0-0.018	0.125	21
10	45 story office	Suburb	sprayed insulation	0.005	0-0.01	0.0055	6
11	2 story pharm. manuf.	Suburb	sprayed insulation	0.003	0.0003-0.007	0.0051	20
12	4 story manuf.	Urban	sprayed insulation	0.106	0.018-0.73	0.22	10
13	1 story pharm. manuf.	Suburb	sprayed insulation	0.039	0.007-0.08	0.018	42
14	Ship in port	NY harbor	pipe insulation	0.018	0-0.09	0.027	10
15	Manufacturer (heavy machine)	Suburb	composite duct work	0.45	0.19-0.89	0.25	6
16	4 story univ. classrooms	Urban	sprayed insulation	0.05	0.02-0.076	0.018	9
17	8 story univ. labs & Class.	Urban	sprayed insulation	0.017	0.004-0.031	0.009	7
18	4 story univ. classrooms	Urban	sprayed insulation	0.03	0.014-0.033	0.02	6
19	6 story univ. library	Urban	sprayed insulation	0.031	0.015-0.059	0.019	4
20	10 story admin.	Urban	pipe and boiler insul	0.055	0-0.188	0.057	10

PLAINTIFF'S EXHIBIT
UC-1714

Union Carbide trial exhibit UC-1714: Tables and Charts on Airborne Asbestos Fiber Concentrations in 40 General O...
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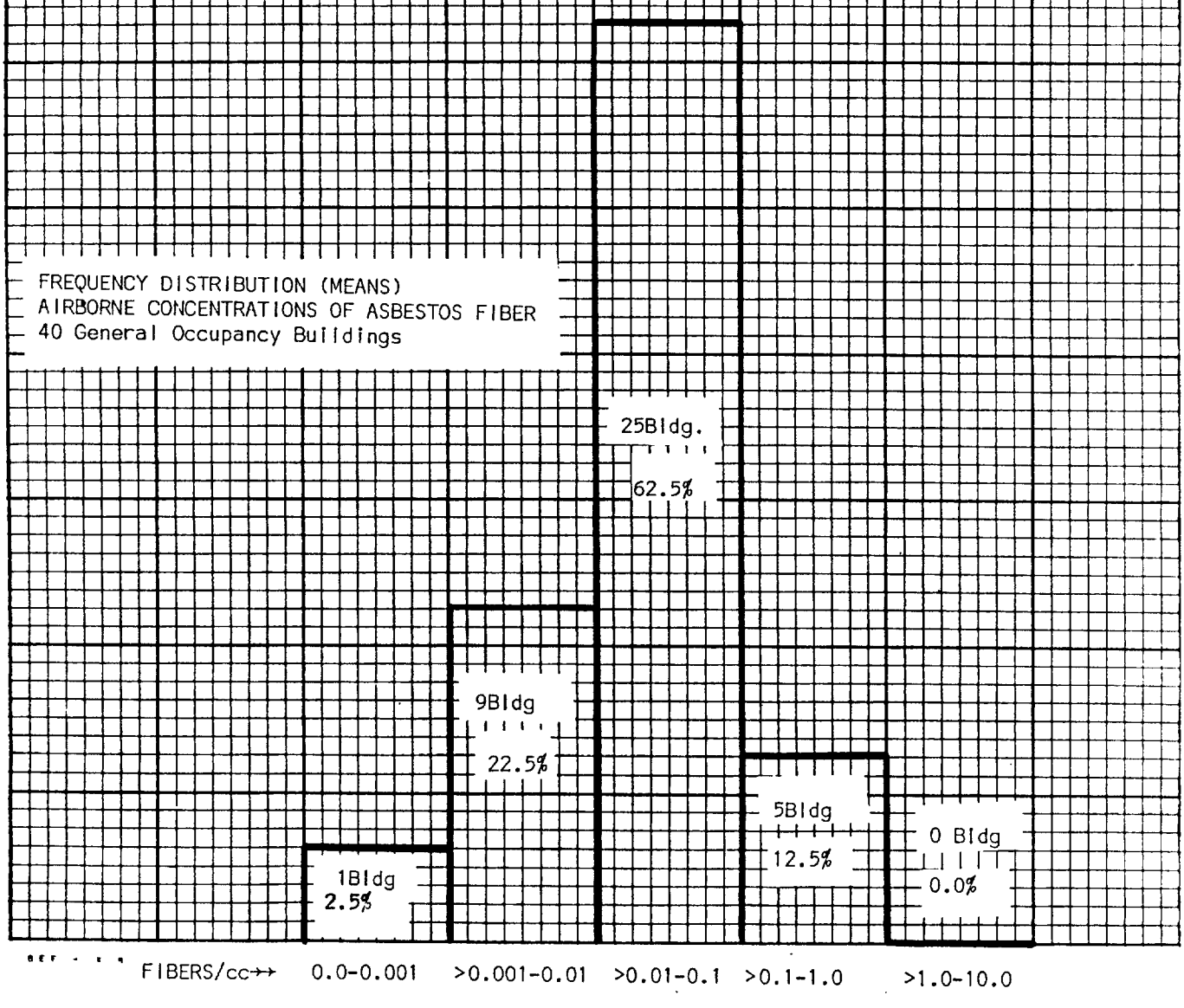
Airborne Concentrations of Asbestos Fibers in 40 General Occupancy Buildings

Study #	Description	Envir. type	Source	$\bar{x}$ F/cc	R F/cc	S F/cc	n
21	Ship at sea	N. Atlantic	pipe & boiler insl.	0.17	0.08-0.39	0.09	8
22	Ship at sea	N. Atlantic	pipe & boiler insl.	0.05	0.03-0.07	0.013	6
23	Ship at sea	N. Atlantic	pipe & boiler insl.	0.011	0.005-0.025	0.005	20
24	2 story school classrooms	Suburb	pipe & boiler insl.	0.0231	0.015-0.045	0.008	10
25	2 story school classrooms	Suburb	pipe & boiler insl.	0.009	0-0.0145	0.005	10
26	10 story admin.	Urban	pipe & boiler insl.	0.004	0-0.014	0.004	19
27	5 story hospital	Suburb	pipe & boiler insl.	0.22	0-0.42	0.166	5
28	5 story univ. classrooms	Urban	pipe & boiler insl.	0.03	0.015-0.05	0.017	3
29	3 story office	Suburb	pipe & boiler insl.	0.035	0.004-0.065	0.032	9
30	3 story school classrooms	Urban	sprayed insulation	0.0035	0-0.016	0.006	6
31	2 story house of worship	Suburb	sprayed insulation	0.042	0.02-0.075	0.02	5
32	1 story retail cloth. store	Suburb	sprayed insulation	0	0	0	3
33	3 story school classrooms	Urban	sprayed insulation	0.0055	0-0.014	0.006	6
34	2 story school classrooms	Suburb	plaster insulation	0.046	0-0.104	0.047	4
35	2 story school classrooms	Suburb	plaster insulation	0.049	0.015-0.100	0.045	3
36	2 story school classrooms	Suburb	plaster insulation	0.024	0-0.099	0.042	5
37	2 story school classrooms	Suburb	plaster insulation	0.013	0-0.0263	0.018	2
38	2 story school classrooms	Suburb	plaster insulation	0.029	0.0112-0.0468	0.025	2
39	2 story school classrooms	Suburb	plaster insulation	0.0447	0.0163-0.0852	0.036	3
40	2 story school classrooms	Suburb	plaster insulation	0.0855	-	-	1

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Distribution of Concentrations of Asbestos Fibers in Air (40 General Occupancy Buildings)

Group (F/cc)	Extreme (low end)		Mean		Extreme (high end)	
	#	%	#	%	#	%
0.0-0.001	17	42.5	1	2.5	1	2.5
>0.001-0.01	9	22.5	9	22.5	4	10.0
>0.01-0.1	13	32.5	25	62.5	26	65.0
>0.1-1.0	1	2.5	5	12.5	8	20.0
>1.0-10.0	0	0.0	0	0.0	1	2.5
Total	40	100%	40	100%	40	100%



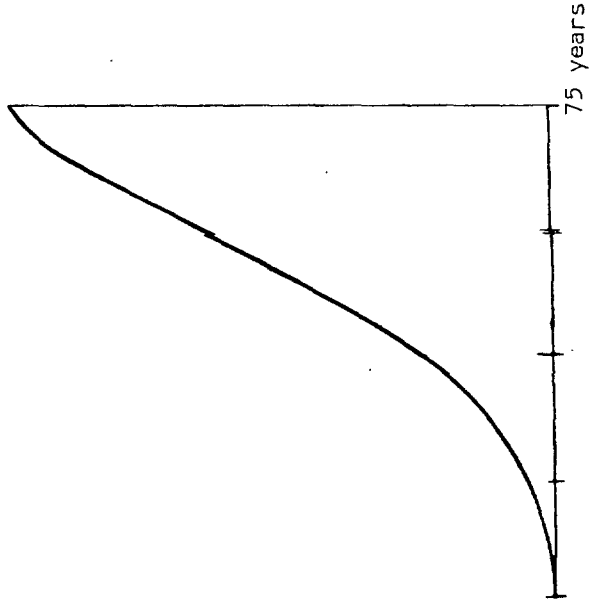
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@ 40.00 years = 133.9/million

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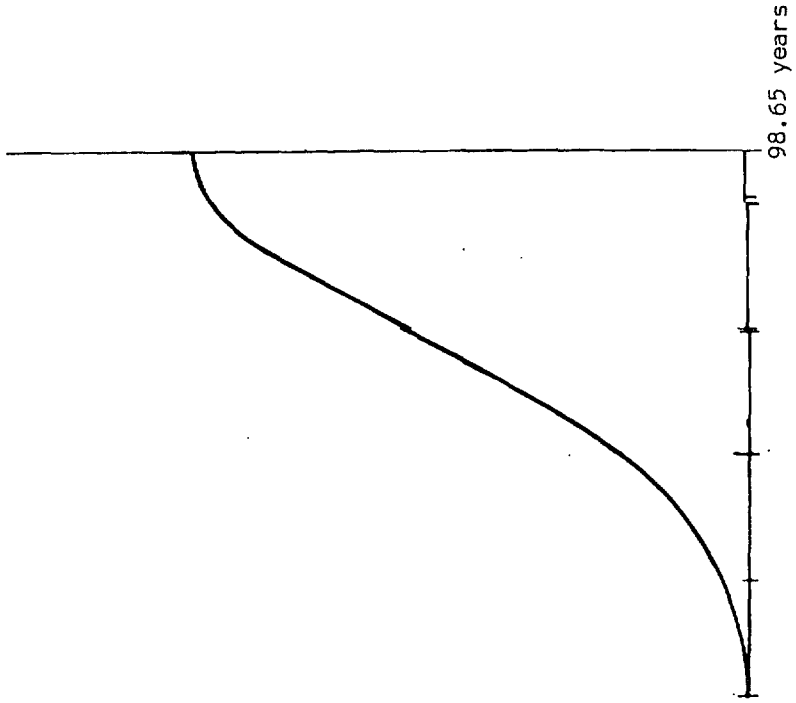
@75.00 years = 2550/million



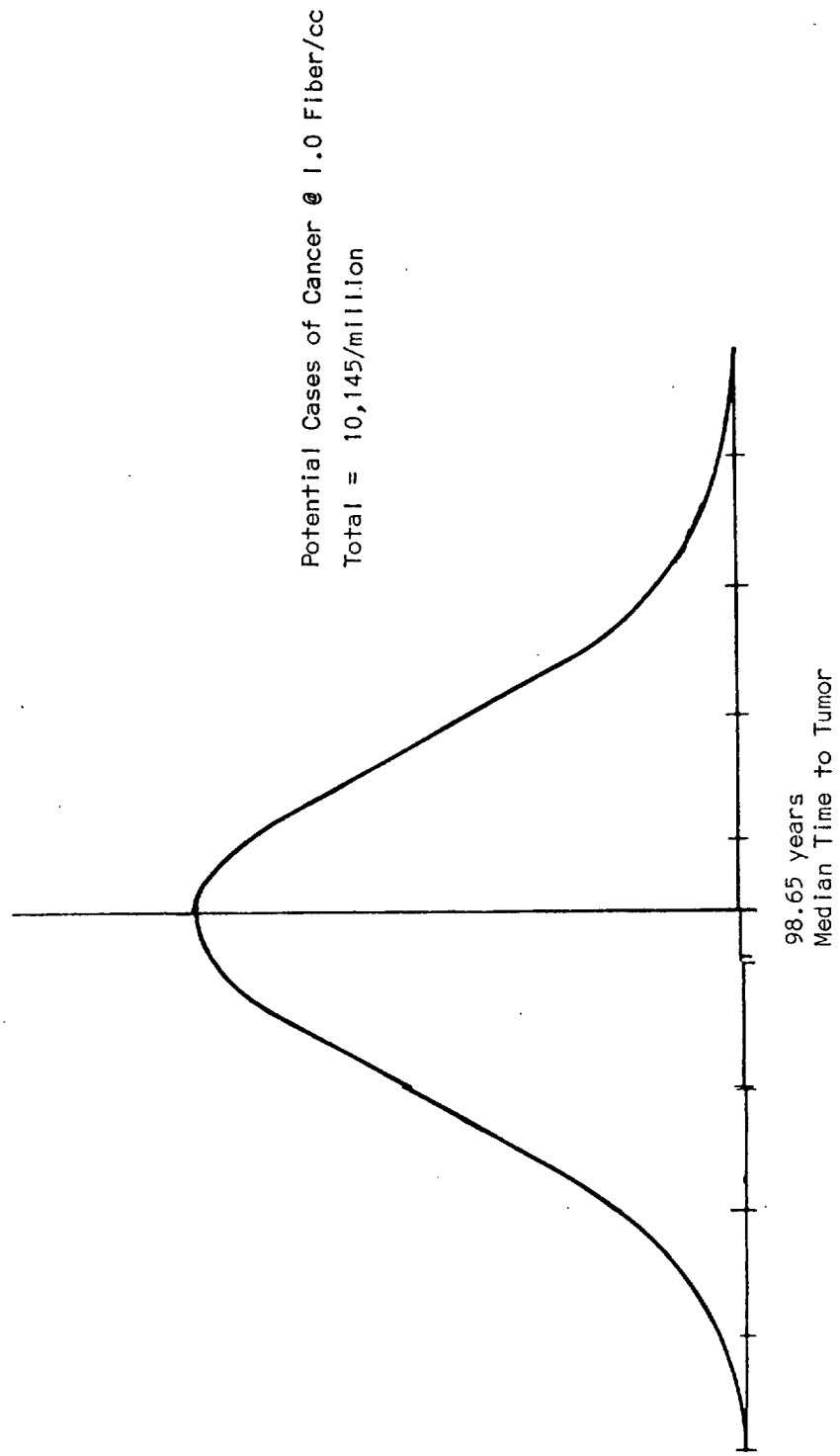
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@98.65 years = 5072 / million



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Table 3

Potential Cases of Asbestos Related Cancer
Due to Fiber Exposures in Selected*
General Occupancy Buildings

(1) Study #	(2) TWA 8	(3) Dose	(4) T - T	(5) Total /10^6	(6) P in 40 Log normal	(7) # in 40 (5 x 6)	(8) P in 75 Log Normal	(9) # in (5x8)75
2	0.033	0.163	179.5	1,653.6	0.0001	0.165	0.0158	26.12
5	0.21	1.035	97.5	10,500	0.0107	112.35	0.2578	2707
6	0.0016	0.008	485.4	81.2	0	0	0	0
7	0.02	0.09	218.4	913	0	0	0.0041	3.74
9	0.006	0.03	313.8	304	0	0	0.0002	0.06
11	0.003	0.015	394.5	152.2	0	0	0	0
12	0.106	0.52	122.4	5,275	0.003	15.8	0.113	596.6
13	0.039	0.19	170.65	1,928	0.0002	0.38	0.0215	41.45
14	0.018	0.09	218.4	913	0	0	0.0041	3.74
20	0.055	0.27	152.0	2,739	0.0005	1.37	0.0409	112.0
23	0.011	0.054	258.5	548	0	0	0.0011	0.6
24	0.023	0.11	204.4	1,116	0	0	0.0068	7.59
25	0.009	0.044	276.54	446	0	0	0.006	0.27
26	0.004	0.02	358.72	203	0	0	0.0001	0.02

Column 1. Study number

2. TWA 8 mean concentration of fibers (f/cc) found

3. Dose 10 year equivalent exposure $\left(\frac{\text{f/cc} \times 180}{365} \times 10\right) = D$

4. Median time to tumor 98.65 (1/D) .33 = t

5. Potential cases/million total

6. Proportion of potential cases/million in 40 years

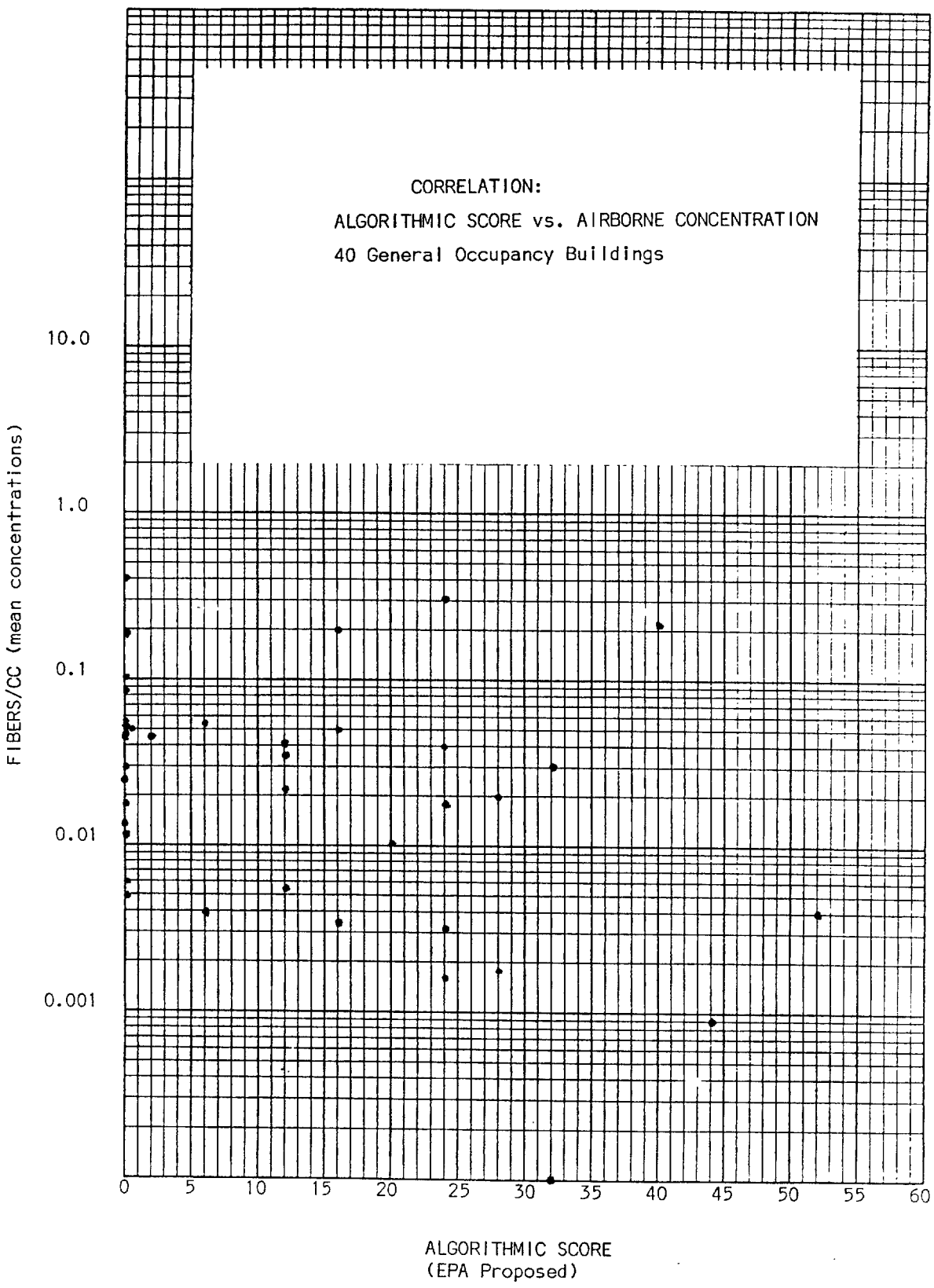
7. Number of potential cases/million in 40 years

8. Proportion of potential cases/million in 75 years

9. Number of potential cases/million in 75 years

*Only building where 10 or more environmental samples were collected.

BRG 0399


CORRELATION:
ALGORITHMIC SCORE vs. AIRBORNE CONCENTRATION
40 General Occupancy Buildings
FIBERS/CC (mean concentrations)
10.0
1.0
0.1
0.01
0.001
0
5
10
15
20
25
30
35
40
45
50
55
60
ALGORITHMIC SCORE
(EPA Proposed)

68

BRG 0400

Cancer Incidence and Mortality Rates

Catagory	Rate (cases/million/year)	Source
New Cases 1979 (Est.)	3309	Amer. Cancer Society
Deaths 1979 (Est.)	1284	Amer. Cancer Society
Lung Cases 1979	509	Amer. Cancer Society
Lung Deaths 1979	445	Amer. Cancer Society
*Asbestos Induced (lung)	149(1)	Projected
*Asbestos Induced (lung)	130(2)	Projected

(1) based on total cases in 40 years

(2) based on total cases in 75 years

* based on a TWA of 1.0 f/cc and 1 year equivalent 10 year dose of 20.3 f/cc

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Risk of Doing Nothing vs. Something (removal)

	Nothing (Highest Bldg-(Sprayed Insul)	Something (removal)
TWA 8	0.21 f/cc	100 f/cc
Dose	1.035 F	2.74
Median Time to Tumor	97.5 years	70.73
Cases/million	10,500	27,797
Proportion in 40 yrs.	0.0107	0.081
Cases in 40 yrs.	112.35	2,245.8
Proportion in 75 yrs.	0.2578	0.44
Cases in 75 yrs.	2,707.00	12,349.0

BRG 0402