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UNION CARBIDE

INTERNAL CORRESPONDENCE

JAN 8 1969

U.C.C. CHEM. & PLASTICS
KING CITY, CALIF.

UNION CARBIDE CORPORATION • 270 PARK AVENUE, NEW YORK, NEW YORK 10017

To (Name) Mr. J. A. Riddle
Division Union Carbide Corporation
Location P. O. Box K
King City, California 93930

Date December 27, 1968

Originating Dept.

Answering letter date

Copy to J. J. Welsh, M. D./K. S. Lane, M. D.

Subject

PLAINTIFF'S EXHIBIT
Union Carbide 128

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Dear John:

The dust concentrations found at the King City asbestos facility December 10, 11, 1968 are shown in accompanying Table 1. Included in the Table are the dust counts for airborne dust samples collected by midget impinger and various measurements for airborne dust samples collected usually at the same time on millipore filter paper. The impinger results which you already have are repeated simply for completeness.

The filter paper samples were counted by phase microscopy at a magnification of 100 times (the same magnification as used for impinger samples). One set of counts shows total particles present per cubic foot of air and the other set shows the fibers longer than 5 microns per milliliter of air. A final group of filter samples shows the weight of total airborne dust per cubic meter of air. This last group of measurements were obtained as a matter of interest for our records. At present, no great significance has been attached to the weight-concentration of dust in exposure to asbestos; however, it may be considered more important in the future.

Table II is the repetition of the result of dust counts you reported to me for impinger samples collected December 12, 1968. These are somewhat lower than those obtained for the previous days in areas other than bagging and pallet loading.

It was agreed that the counts obtained for the morning of December 10, 1968 probably reflected unusual conditions including strong winds from the south and an extended period of dry weather. Afternoon samples for December 10, 1968 were collected during a period of hard rain. Samples collected on following days probably reflect to some degree the increased general moisture in the air.

The present official limit for total airborne dust in exposure to asbestos is 5.0 MPPCF as determined by the light field microscope technique that has been followed at King City. As you know we have taken a conservative approach to this technique by allowing a longer-than-usual settling period for particles in our dust counting cells. We felt this advisable owing to the unique small-size fibers which we encounter in our operations.

In May, 1968 new, more restrictive tentative limits were proposed by the American Conference of Governmental Industrial Hygienists (ACGIH) for exposure to asbestos. These limits reflect the growing concern and experience in evaluation of the toxicity of asbestos. They are as follows:

2.0 MPPCF (time weighted average as determined by the standard impinger technique)

or, 12 fibers/ml greater than 5 micron length (as determined with membrane filters and phase contrast microscopy at a magnification of 430 times).

I feel that these tentative limits will probably replace the present one of 5.0 MPPCF in the near future.

A comparison of our findings for total dust counts with the old 5.0 MPPCF limit shows that during the windy, dry part of the day of December 10, 1968 most of the concentrations encountered were above the allowable level. This was true even for samples at the north fence. Samples collected at other times of the same day (during the rain) and on the following days showed concentrations below the limit except around the dry parts of the production circuits. Comparison of the findings for the several days with the proposed 2.0 MPPCF total dust limit indicated that the limit was probably exceeded about anywhere except at the south fence.

We were not prepared to evalute fibers greater than 5 microns in length by phase microscopy at the magnification required (430X) in the proposed new limits. We did, however, determine the number of these fibers by phase microscopy at 100X and believe that they might relate in a general way to the results that would be obtained at 430X magnification. In broad terms, I would estimate that where present results exceed 6.0 fibers/ml greater than 5 micron in length, the same sample at a magnification of 430X would show that the number of fibers of this size category were above the proposed limit of 12.0/ml. I shall give you a better answer when the necessary optical equipment is obtained.

For protection of health it has been the practice at King City to separate dry parts of the operations from the wet circuit, to provide exhaust ventilation for dust control and to require the wearing of respirators by personnel in the bagging and

automatic pallet loading areas. I was pleased to note that the respirator requirements were being observed and to find that the new respirators are not uncomfortable, but I recommend that the need for a good seal (fit) should be reemphasized from time to time.

In your recent letter you state that respirators will also be made mandatory in manual pallet loading, that floor sweeping will be wet down before removal from the bagging area and that a wet system will be designed and installed for returning clean-up material from the bagging area to the head of the circuit. I believe each one of these moves is commendable and necessary for control of dust and protection of personnel. I recommend also that all reasonable effort be made to prevent or reduce loss of dust from the stock pile and that consideration be given to exhaust dust control at the hand pallet loading point. I realize, of course, that the latter location may not be used for this purpose as frequently in the future so this fact must be weighed along with others. However, with the proposed lowering of dust limits the dust losses in manual bag handling might now significantly affect the concentrations in other parts of the building (around the filter presses, for example).

I also recommend that dust concentrations be determined by impinger monthly for the next three or four months in the work areas of the mill including the upstairs lab storage area and also along the line fences. Findings will indicate whether our additional dust control efforts are effective and provide results to compare with the proposed limits. Ultimately, I feel we should be prepared to perform phase contrast microscopy and I recommend

we prepare to obtain the necessary equipment. I am enclosing a brochure that gives information on the type of microscope that will be needed. I reviewed this subject with the supplier of the present microscope at King City and found that this instrument cannot be converted for the purpose. However, the suggested microscope is of modest cost and from what I could tell by examination at the plant would be satisfactory for your need. I suggest the present instrument be retained for light-field application as in impinger counts.

I am sorry I didn't get to see you before my departure from King City. I'll attempt to get out to the plant for another appraisal in the late winter or early spring.

Thanks for your usual fine cooperation.

Very truly yours,

Paul

Paul W. McDaniel
Industrial Hygiene Engineer

PWM:dp

Enclosure

Union Carbide trial exhibit Union Carbide 128: Paul W. McDaniel to J. A. Riddle on December 1968 Dust Counts at...
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TABLE 1

Airborne Dust Concentrations
Union Carbide Corporation
King City, Cal.
December 10, 11, 1968

Location	MPPCF (Total Dust)* Impinger Samples	MPPCF (Total Dust)* Fitter Samples	Fibers longer than 5 microns per milliliter of air	weight of total dust mg/m^3	Remarks
Mill'					
Area outside shifters office (12-10-68 a.m.)	10.8 11.2	7.5 9.1	4.2 4.0	0.8	Strong winds from south. Dusty on general.
Same (12-10-68 p.m. after rain started)		3.0	2.3	0.27	Marked drop in visible dust.
Same (12-11-68 a.m.)				0.20	Very little visible dust. Light breeze from north.
North Fence - (12-10-68 a.m.)	5.5 7.7	4.9 6.8	6.9 4.1		Strong winds (12-20 mph) from south
South Fence - (12-11-68 a.m.)		1.0 0.7	0.6		Light wind from north (2-6 mph)
Discharge end of bag conveyor, (12-10-68 a.m.)	11.2 14.4	13.0 9.8	4.7 3.0	5.52	Alongside personnel. Dust from bag handling.
Beside bagger operator - (12-10-68 am) bagging pellets.	17.8 19.2	18.4 16.9	8.0 7.1	7.41	Respirators worn by personnel in this area.
General wet circuit area, (12-10-68 am)	9.1 6.7	5.8 5.9	1.5 1.2	0.26	
Beside automatic pallet loader (12-10-68 a.m.) - open asbestos	16.8 15.1	11.2 14.7	3.1 4.0	2.37	Respirators worn in this area.

Union Carbide trial exhibit Union Carbide 128: Paul W. McDaniel to J. A. Riddle on December 1968 Dust Counts at...
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Airborne Dust Concentrations
Union Carbide Corporation
King City, Cal.
December 10, 11, 1968

Location	MPPCF (Total Dust) Impinger Samples	MPPCF (Total Dust) Fitter Samples	Fibers longer than 5 microns per milliliter of air	weight of total dust mg/m^3	Remarks
Inside shifters office (12-10-68 p.m.)	4.1 6.0	5.4 3.8	1.3 1.5	0.12	Door partially open.
Lab. storage - second floor - during bagging of samples. (12-10-68 p.m.)		6.7 7.4	10.1 6.8		

* MPPCF - millions of particles per cubic foot of air.

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Union Carbide trial exhibit Union Carbide 128: Paul W. McDaniel to J. A. Riddle on December 1968 Dust Counts at...
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TABLE 2

Airborne Dust Concentrations
Union Carbide Corporation
King City, Cal.
December 12, 1968

Location	MPPCF*
End of bag conveyor-hand stacking Std. Grade	14.7
Same as above	15.1
Bagging area - Std. Grade pellets.	17.3
Same as above	16.1
North fence line	4.6
Same as above	4.1
Refiner circuit area	3.8
Same as above	2.9
Office area	6.1
Same as above ,	4.8
Shifters office	3.8
Same as above	3.8

Weather: fair - wind from south

*MPPCF-millions of particles per cubic foot of air.

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King City 12-10-68

No.	MPPCF	Location
24	10.8	Office Area
26	11.2	" "
47	5.5	North Fence
50	7.7	" "
59	11.2	End of bag conveyor
65	14.4	" " " "
68	17.8	Bagger - pellets
69	19.2	" "
71	9.1	General wet circuit
88	6.7	" " "
93	16.8	Palletizer - (open Asbestos
95	15.1	" "
109	4.1	Shifter's office
195	6.0	" "
BLANK	5	

Microscope -
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