GEORGE H. FARRAH
ENVIRONMENTAL HEALTH LABORATORY
ALCOA TECHNICAL CENTER - C

MR. R. E. PODHORA
POINT COMFORT OPERATIONS

September 9, 1976

RE: TESTS OF RESPIRATOR FILTER MEDIA IN A SODERBERG POTROOM

This report will confirm results of the caption tests which were discussed with you and with Mr. T. B. Bonney shortly after completion. The attached material may be a duplication, but will assure that all recipients have the complete story after this long delay. Averages of the individual tests (report attached) are summarized:

Filter Medium	Total Part., mg/M³	"PPOM" Bz.Sol.(grav.), mg/M³	"PPOM" THC(GC), mg/M³	"PPOM" B(a)P, µg/M³	Org.Vapors THC(GC), mg/M³
MSA Gasfoe	.09 7.1%	.76	.06	.93	ca. .01
MSA Dustfoe	.04 3.2%	.68	.07	.00	.21
3M 8706	.02 1.6%	.76	.06	.00	.25
Control (no prefilter)	1.26	.96	.18	4.8	.10

As these figures indicate, the dust filter materials tested (MSA Dustfoe and 3M 8706) were about equally effective in removing Total Particulates. As expected, the MSA Gasfoe cartridge was slightly less effective. However, it removed about 93% of the particulates found in the Control samples, compared with about 98% removal for the filter media.

Surprisingly little difference was found in Benzene Solubles which penetrated the respirator filter media and all were above the Coal Tar Pitch Volatiles standard of 0.2 mg/M³. However, when these same benzene extracts were examined by gas-liquid chromatography, the Total Hydrocarbons were found to be less than half the CTPV standard. We do not have a good, defensible explanation for this.

While the Gasfoe cartridge was least effective in removing benzo(a)pyrene [B(a)P], it still removed more than 80% of the amount found in unfiltered air. The greatest advantage of Gasfoe--which comes as no surprise--is its ability to remove the lighter organic vapors and gases which penetrate the particulate filters but are adsorbed by activated charcoal.

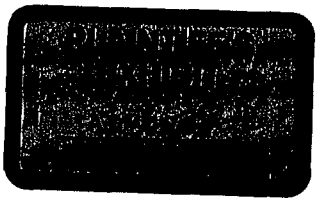
GHF

GEORGE H. FARRAH

GHF:ds

Attachments (3)

cc: T. B. Bonney, Pittsburgh-7
C. L. Green, Point Comfort
M. F. Jones, Point Comfort
J. W. Hood, Point Comfort



APC 005278

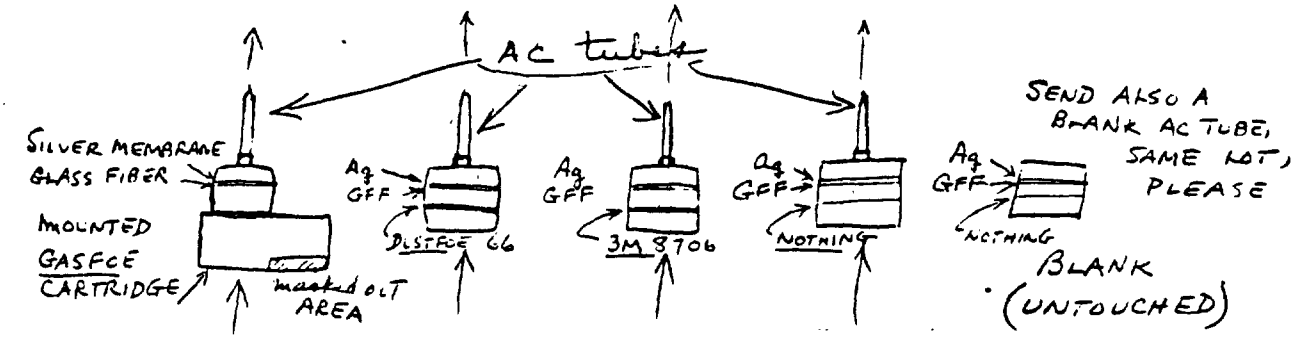
ALCOA

RECD 7-16-75

TEST ON MASK MATERIALS TO BE RUN AT POINT COMFORT JULY 1975

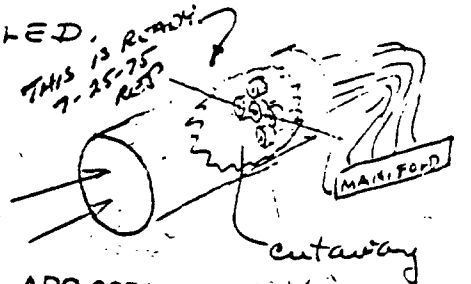
This is followup of I.H. 2676 Samples taken in January at Point Comfort.

Proposal: to test 3 mask materials simultaneously along with control filter, each followed up with an activated charcoal tube in the line. The test will be run three times - a total of 12 monitors plus 12 backup AC tubes.



Nos 1,5,9 2,6,10 3,7,11 4,8,12

INSTEAD OF THE LATERAL POSITIONING OF THE SAMPLERS, IT IS DESIRED THAT THEY BE ARRANGED CLOSE TOGETHER WITH THE INTAKE OPENINGS ALL ON THE SAME PLANE. THE CLUSTER SHOULD THEN BE SHROUDED BY A PIECE OF 8" DUCT ABOUT 18 INCHES LONG. THIS SHOULD PROMOTE HOMOGENEITY OF THE AIR SAMPLED.



PLEASE CALL IF YOU HAVE QUESTIONS.

Will Cutlip 7/15/75

APC 005279

TEST ON RESPIRATOR MATERIAL 8-14-75

The TEST WAS RUN IN LINE 4, ROOM 34 AT POT No 126, ON Aug. 11, 12 AND 13. The FILTERS WERE MOUNTED IN A CLUSTER AND INCLOSED IN A DUCT AS PER YOUR INSTRUCTION.

SET No. 1

FILTERS No. 1, 2, 3 AND 4 } 425 LITERS
AC Tubes No. 1s, 2s, 3s AND 4s }

SET No. 2

FILTERS No. 5, 6, 7 AND 8 } 430 LITERS
AC Tubes No. 5s, 6s, 7s AND 8s }

SET No. 3

FILTERS No. 9, 10, 11 AND 12 } 435 LITERS
AC Tubes No. 9s, 10s, 11s AND 12s }

ALL TESTS WERE DONE UNDER SIMILAR CONDITIONS DURING NORMAL OPERATIONS. The SAMPLER WAS SET UP 5 FEET ABOVE FLOOR LEVEL AND 6 FEET AWAY FROM THE POT. AVERAGE TEMP. DURING TEST WAS 108° F AT THE SAMPLER.

PLEASE CALL IF YOU HAVE QUESTIONS.

Jerry Wagner

APC 005280

ALCOA ENVIRONMENTAL HEALTH LABORATORY

DETERMINATION OF PARTICULATE POLYCYCLIC ORGANIC MATTER ("PPOM")

Point Comfort Works Location: Potroom Date Rec'd.: 8/18/75

Sampling Method: Filter media/37-mm glass fiber filter/silver membrane/organic vapor sampling tube

Analytical Method: Ultrasonic Benzene Extraction/gas-liquid chromatography (Filter pairs)
Carbon disulfide desorption/gas-liquid chromatography (Organic vapor tubes)

		Glass fiber filter				Organic Vapor Sampling Tube
I.H.No.		Tot.Part. mg/M³	Bz. Sol. Gravimetric mg/M³	Total H.C.,G.C. mg/M³	B(a)P µg/M³	Total H.C.,G.C. mg/M³
	Run #1, 8/11/75					
2722-1	Gasfoe	*	1.08	.06	--	.01
-2	Dustfoe	.12	.71	.06	--	.38
-3	3M-8706	*	1.08	.06	--	.52
-4	No pre-filter	1.01	1.41	.18	4.7	.19
	Run #2, 8/12/75					
-5	Gasfoe	.09	.33	.05	1.1	.01
-6	Dustfoe	.00	1.02	.08	--	.13
-7	3M-8706	.07	.56	.08	--	.12
-8	No pre-filter	1.23	.28	.16	5.6	.05
	Run #3, 8/13/75					
-9	Gasfoe	.18	.87	.07	1.7	.02
-10	Dustfoe	.00	.32	.07	--	.13
-11	3M-8706	*	.64	.05	--	.12
-12	No pre-filter	1.54	1.20	.19	4.1	.05

*Filter postweight weighed less than preweight.

Analyzed by: K. P. Karsten/L. W. Ortlip

Report Date; January 28, 1976

APC 005281

Aluminum Company of America

ALCOA LABORATORIES

APC 005282

Prefilter	Sample No.	Conc'n of material collected on Glass Fiber (hi eff) filter mg/m³ Tot. Part.	Benz Sol	Total HC (as C)	ug/m³ B(a)P	mg/m³ organic Vapor
GASFOE	1	*	1.08	0.06	—	0.01
	5	0.09	0.33	0.05	1.1	0.01
	9	0.18	0.87	0.07	1.7	0.02
	Avg	0.09	0.76	0.06	0.9	0.01
DUSTFOE	2	0.12	0.71	0.06	—	0.38
	6	0.00	1.02	0.08	—	0.13
	10	0.00	0.32	0.07	—	0.13
	Avg	0.04	0.68	0.07	—	0.21
3M-8706	3	*	1.08	0.06	—	0.52
	7	0.07	0.56	0.08	—	0.12
	11	*	0.64	0.05	—	0.12
	Avg	0.02	0.76	0.06	—	0.25
~~Fiberglass Filter~~ (~~hi efficiency~~)	4	1.01	1.41	0.18	4.7	0.19
	8	1.23	0.28	0.16	5.6	0.05
No Prefilter	12	1.54	1.20	0.19	4.1	0.05
	Avg	1.26	0.96	0.18	4.8	0.10

FORM 0270 (REV 9-74) 50M 10-74

* postweight less than preweight