



A
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Interoffice Communication

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To A. H. Sather
From J. V. Uptain
Date March 31, 1978
Subject CHEMICAL EXPOSURE MONITORING SUMMARY
FIRST QUARTER

APR 6 1978

MEDICAL DIV.

This is the first issue of the Aberdeen Chemical Exposure Monitoring Summary, which is to be issued quarterly. Monitoring results are tabulated in Tables I, II and III.

The current thrust of the Aberdeen monitoring effort is to adequately define exposures related to the 50, "Class A, Type I" materials used in the plant. These chemicals are those known to cause serious bodily damage and for which exposure standards exist.

I. COMPOUND AREA HIGH VOLUME AIR SAMPLING

A. Color Weigh Room

Based on the results of "high-volume" air sampling in the Compound areas last year, it was concluded that exposures in this room were possibly excessive. To be more definitive, some 13 samples were taken between 1/31/78 and 2/27/78, using a high volume sampler and cellulose filter paper. Samples were taken by placing the sampler as close to the workman as possible during his routine color weighing tasks. The samples were then forwarded to Ponca City for emission spectrophotometry.

At writing, six (6) samples have been analyzed. The pertinent results are shown in Table I (attached).

As can be seen in Table I, the results indicate excessive airborne concentrations of Antimony, Barium, Cadmium, Lead, and Total Particulates.

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I. COMPOUND AREA HIGH VOLUME AIR SAMPLING (Cont.)

B. Other Compound Areas

At writing, 19 (33% of anticipated) other high volume air samples have been taken at selected locations throughout the compound production areas. Although the samples have not yet been analyzed for heavy metals content, the total particulate concentrations are shown in Table II (attached).

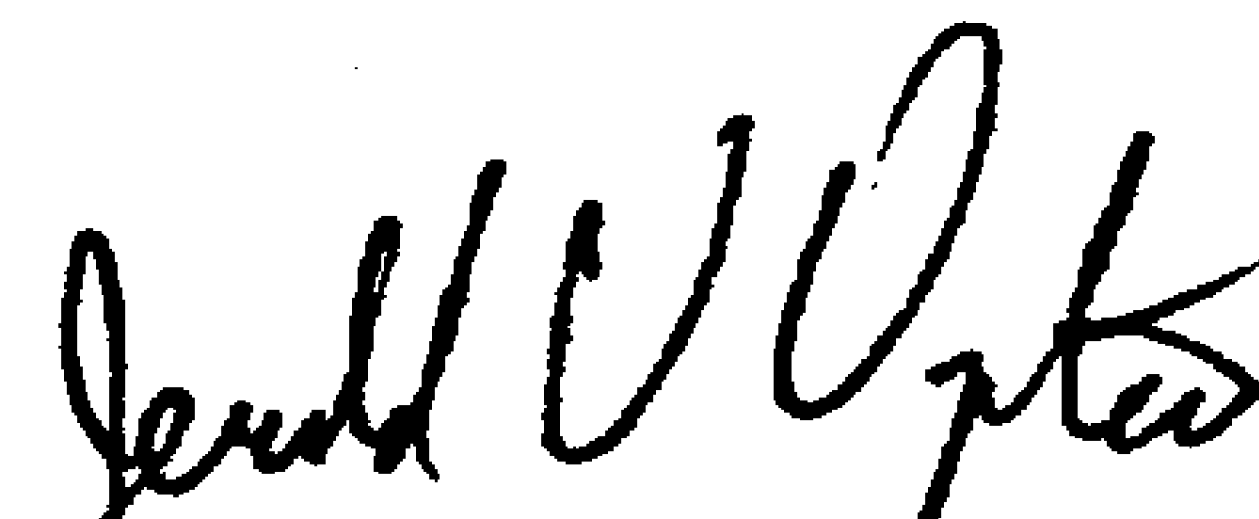
These preliminary results indicate that particulate limits are approached or exceeded on the dry blend mezanine just above the 2nd floor.

Emission spectrophotometry of the samples, which will follow the color weigh room sample analysis, will disclose any excursions above tin limits.

II. DETECTOR TUBE-TYPE SAMPLING

Some nine (9) of the Aberdeen "Class A, Type I" materials are being measured using Drager-type chemical detector tubes. The results of monitoring (which is complete except for two (2) additional methanol samples) are shown in Table III (attached).

The results indicate no significant exposure problems with these chemicals, except for methanol. The "Brittle Point" test procedure used in the lab is obviously in need of modification to preclude further overexposures to this toxic material.


Gerald V. Uptain

jf

Attachments

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TABLE I
COLOR WEIGH ROOM HIGH-VOLUME AIR SAMPLING

1/31/78 - 2/27/78

SAMPLE NO:	78-1	78-2	78-3	78-4	78-11	78-13	
CHEMICALS BEING SAMPLED:	Tribasic Lead Sulfate	Barium/Cadmium Complex	Dibasic Lead Phthalate, Tribasic Lead Sulfate	Tribasic Lead Sulfate	Antimony Trioxide	Antimony Trioxide	
ELEMENT	CONCENTRATION, MICROGRAMS PER CUBIC METER OF AIR						TOXIC LIMIT VALUE (TLV)
Antimony	3.6	13.7	9.5	6.3	> 815.3	> 1729.4	500
Barium	16.8	492.1	82.7	20.5	2.4	1.9	500
Cadmium	36.3	423.4	59.1	18.2	5.7	3.2	200 500
Chromium	< 0.2	< 1.4	2.5	< 0.5	1.7	< 1.7	54.7 500 (As Cr in CrO ₃)
Copper	0.3	< 1.4	< 0.8	* < 0.5	< 0.8	< 1.7	1000
Lead	* < 0.5	217.4	390.0	170.4	34.8	26.4	200 150
Manganese	< 0.1	* < 1.4	< 0.8	< 0.5	< 0.8	* < 1.7	500
TOTAL PARTICULATES	2,260	21,200	9,200	5,700	11,400	44,900	15,000

* No emission line observed for this element. All < or > values were outside calibration range.

NOTE: Seven (7) additional samples were taken, but analysis is not yet complete.

TABLE II

COMPOUND AREA HIGH-VOLUME AIR SAMPLING

3/10/78 - 3/29/78

SAMPLE NO.	LOCATION	CHEMICALS BEING SAMPLED			*TOTAL PARTICULATES, MICROGRAMS PER CUBIC METER OF AIR
		DIBASIC LEAD PHTHALATE	TRIBASIC LEAD SULFATE	ALKYTIN MERCAPTIDE	
78-27	Line III-3'E. of E. Dicer Line	X			210
78-28	Line III-Operator Station Between Dicer Lines @ Mill	X	X		330
78-47	Line III-Just E. of FCM/Mill Conveyor	X	X		5,000
78-46	Line III-Feeder Deck	X	X		6,000
78-65	Line III-Feeder Deck, SW Corner	X	X		6,000
78-63	Line III-Feeder Deck, SW Corner	X	X		220
78-64	Line III-Feeder Deck, SW Corner	X	X		1,400
78-33	Line III-SE Corner of FCM Room	X	X		860
78-17	Dry Blend-3' W. of Master Batch Charge Platform			X	1,600
78-56	Dry Blend-Blender Platform			X	3,600
78-54	Dry Blend-Blender Platform			X	3,400
78-55	Dry Blend-Blender Platform			X	1,200
78-51	Dry Blend-Welex Mezanine Between 1st & 2nd Floors			X	750
78-52	Dry Blend-Welex Mezanine Between 1st & 2nd Floors			X	250
78-53	Dry Blend-Welex Mezanine Between 1st & 2nd Floors			X	860
78-21	Dry Blend-Welex Mezanine just above 2nd Floor			X	10,300

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TABLE II (Cont.)

COMPOUND AREA HIGH-VOLUME AIR SAMPLING3/10/78 - 3/29/78

SAMPLE NO.	LOCATION	CHEMICALS BEING SAMPLED			*TOTAL PARTICULATES MICROGRAMS PER CUBIC METER OF AIR
		<u>DIBASIC LEAD PHTHALATE</u>	<u>TRIBASIC LEAD SULFATE</u>	<u>ALKYTIN MERCAPTIDE</u>	
78-20	Dry Blend-Welex Mezanine just above 2nd Floor			X	16,620
78-26	Dry Blend-Welex Mezanine just above 2nd Floor			X	3,920
78-25	Dry Blend-Welex Mezanine just above 2nd Floor			X	13,500

* The Current Toxic Limit Value (TLV) for Total Particulates is 15,000 Micrograms per Cubic Meter.

TABLE III
DETECTOR TUBE AIR SAMPLING
3/3/78 - 3/23/78

SAMPLE NO.	CHEMICAL	LOCATION/ACTIVITY	CONCENTRATION IN AIR, PPM	
			SAMPLE	TOXIC LIMIT VALUE (TLV)
78-59	Alpha Methyl Styrene (AMS)	Reactor Area, BHT Makeup Tank	25	100
78-30	Alpha Methyl Styrene	Reactor Area, BHT Charging to Reactor	25	100
78-22	Alpha Methyl Styrene	Reactor Area, BHT Makeup Tank	25	100
78-18	Alpha Methyl Styrene	Reactor Area, BHT Makeup Tank	50	100
78-50	Alpha Methyl Styrene	Reactor Area, BHT Charging to Reactor	0	100
78-58	Catalyzed Hydrazine	Boiler House, Amerzine Mix Tank	0	1
78-41	Catalyzed Hydrazine	Boiler House, Lab	0.3	1
78-40	Catalyzed Hydrazine	Boiler House, Amerzine Mix Tank	0.1	1
78-48	Catalyzed Hydrazine	Boiler House, Amerzine Mix Tank	0	1
78-14	Ethyl Ether	SE Corner of Development Lab, "Brittle Point" Test	0	400
78-16	Ethyl Ether	Transferring ether from Resin Lab to Development Lab	0	400
78-36	Ethyl Ether	NE Corner of Resin Lab	0	400
78-37	Ethyl Ether	NE Corner of Resin Lab	0	400
78-15	Ethyl Ether	SE Corner of Development Lab, "Brittle Point" test	0	400
78-29	Chlorine	Chlorine Storage Shed	0	1
78-23	Chlorine	Chlorine Storage Shed	0	1
78-42	Chlorine	Chlorine Storage Shed	0	1

TABLE III
DETECTOR TUBE AIR SAMPLING
3/3/78 - 3/23/78

SAMPLE NO.	CHEMICAL	LOCATION/ACTIVITY	CONCENTRATION IN AIR, PPM	
			SAMPLE	TOXIC LIMIT VALUE (TLV)
78-31	Chlorine	Boiler House Lab, Cooling Tower Water Testing	0	1
78-38	Chlorine	Boiler House Lab, Cooling Tower Water Testing	0	1
78-43	Nitrogen Dioxide	Bottle Storage, S. of Control Room	0	5
78-32	Nitrogen Dioxide	Bottle Storage, 743-744 Reactors	0	5
78-31	Nitrogen Dioxide	Bottle Storage, 741-742 Reactors	0	5
78-24	Nitrogen Dioxide	Bottle Storage, D-300 Reactor	0	5
78-19	Nitrogen Dioxide	Bottle Storage, D-500, D-600 Reactors	0	5
78-34	Phenol	PVC Bagging, Pallet Glueing	0	5
78-35	Phenol	PVC Bagging, Pallet Glueing	0	5
78-44	Phenol	PVC Bagging, Pallet Gluing	0	5
78-45	Phenol	PVC Bagging, Pallet Glueing	0	5
78-49	Phenol	PVC Bagging, Pallet Glueing	0	5
78-60	Methanol	Development Lab, "Brittle Point" Test	100	200
78-61	Methanol	Development, "Brittle Point" Test	200	200
78-62	Methanol	Development, "Brittle Point" Test	1,200	200