M. H. Stermer

Air Products and Chemicals, Inc. PUT IT IN WRITING

Date 19 March 1974

To T. W. Herbig Subject VCM STATUS - WEEK ENDING 18 MARCH

From R. W. McGinnis

( ) Take Action ( ) For Your Approval ( ) For Your Info ( ) Discuss With Me
( ) For Your Comments ( ) As Requested ( ) File ( ) Note & Return

SUMMARY

1. Low VCM exposure of reactor cleaners using Mr. G. B. H. Speed's boilout procedure is verified with this week's personal monitor samples. Four out of five total samples show 9-17 ppm VCM; one sample analyzed about 52 ppm.

2. The reactor building chromatograph is now calibrated; however, indications are that it is still reading too low.

3. The reference gas supplied by Allentown confirms the Calvert Lab calibration procedures.

4. The four chromatograph monitor points on the third floor are satisfactorily located.

5. Reactor building VCM levels increased somewhat this past week over the previous week. The increase appears to be within the normal scatter of VCM levels.

6. Two major reactor building improvements are scheduled for completion by 25 March: activation of first and second level fans and blend tank ventilation. At the completion of these two projects, an intensive four day surveliance comparable to the initial survey will be done.

7. The exhaust fans on the third floor tend to pull up vapors from heavy releases on the bottom floor, when the exhaust fans on the bottom two floors are not operating.

PERSONAL MONITOR - REACTOR CLEANING

Personal monitor data for the past week continued to show low levels of VCM exposure. The low exposure to the reactor cleaners using Mr. G. B. H. Speed's reactor boilout procedure was maintained. Four of the five samples taken showed 9-17 ppm, although a higher value of 51.5 ppm was observed once. All personal monitor data taken to date are summarized by areas in Table I.

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FIXED CHROMATOGRAPH INSTALLATION - REACTOR BUILDING

Receipt of calibration gas from Allentown permitted our reactor building chromatograph to be properly aligned in the instrument response to vinyl chloride. The chromatograph was calibrated at the factory for VCM. Upon installation its readings were roughly 30% of the comparable Century OVA values. Presumably the circuitry was affected by shipment. The chromatograph is now properly calibrated for VCM. However, I question the accuracy of the total system, as the excessively low readings of the chromatograph in comparison to the Century OVA Analyzer (29 ppm average difference), indicates that a small leak is present somewhere in the maze of fittings, pump, etc. Previous comparisons between the laboratory chromatograph and the Century OVA, and also the amounts of VAc and propylene indicated by the reactor building chromatograph, show a difference of about 10 ppm is a reasonable contribution by vinyl acetate, propylene and miscellaneous organics. The accuracy of the chromatograph sampling system will be further scrutinized this week.

COMPARISON OF LABORATORY CALIBRATION WITH REFERENCE GAS CALIBRATION

The cyclinder of calibration gas was received. The analysis of this gas (100 ppm) agrees within 3 ppm of our Laboratory chromatograph. This is within the accuracy of the analysis. The independent preparation and analysis of this calibration gas, and confirmation of its content by our Laboratory, both corroborate Mr. M. H. Stermon's analytical method and also verify the calibration gas supplied by APCI at Allentown.

CHROMATOGRAPH MONITOR LOCATION

The suitability of the chromatograph sampling points on the reactor building third floor was investigated. The objective of specifying these sampling locations was to obtain fairly representative samples of the room contents. Four monitors are available for the third floor, or approximately one monitor per 1500 feet, excluding the nineteenth reactor.

VCM levels at the monitor locations are found to be reasonably representative of the levels on the third

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floor, without excessive deviation from surrounding VCM levels. This is best seen by noting the VCM levels on a plot plan, and visually comparing the readings. Figure I illustrates two such comparisons.

The monitor locations will be checked for the other two floors when the exhaust fans are activated. This does not indicate that stagnant areas are not present that could have excessively high or low concentrations - such stagnant areas will be identified in future work. It also does not judge whether or not monitors should be located in stagnant areas. The conclusion is reached, however, that the locations selected have VCM levels comparable to most of the third floor.

REACTOR BUILDING VCM LEVELS

VCM on all three floors is somewhat higher than last week, largely because of leaks and maintenance.

Table II lists the Century OVA readings taken on each shift this past week.

REACTOR BUILDING IMPROVEMENTS

The next anticipated improvements are scheduled for this week. The absence of conduit has held up activating the exhaust fans for the first and second floors. Conduit arrived as this report is being written and wiring will immediately start. These fans are expected to be turned on within several days.

The blend tank ventilation system is likewise scheduled for completion by 25 March.

VCM VAPORS RISING FROM LOWER FLOORS

The exhaust fans on the third floor do tend to pull up vapors from lower levels. Two known instances of monomer venting on the first floor, and one other period of high VCM levels on the first floor, were accompanied by corresponding rises in VCM on the third floor. A central location on all floors was

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selected for comparison (Figure 2).

R. W. McGinnis

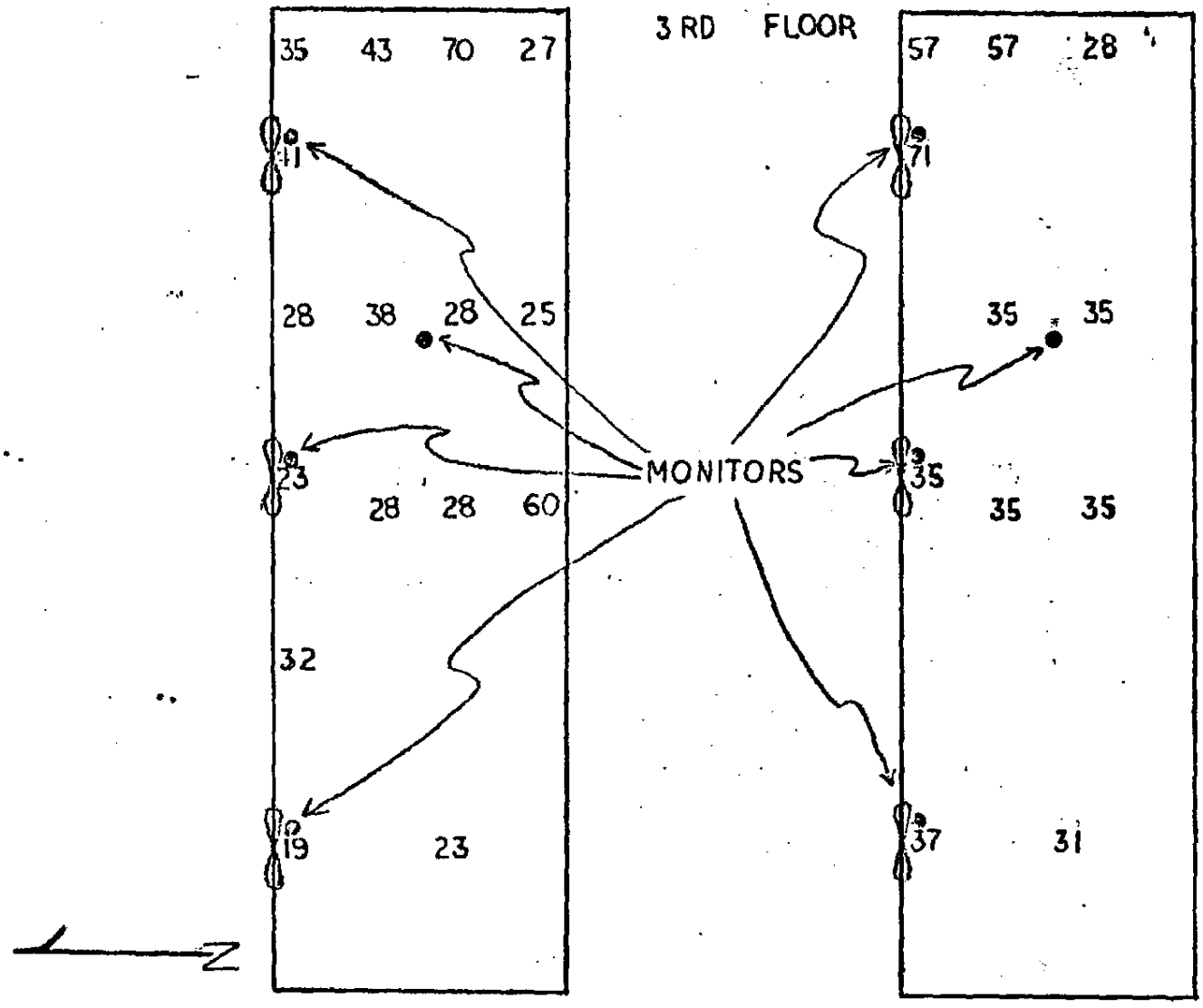
RWM:sc

Attachments

cc: A. R. Adams/Valley Forge
J. T. Barr/Valley Forge
T. L. Carey/Valley Forge
W. D. Draffen
W. E. Dunning
R. Fleming/Trexlertown/Valley Forge (2)
J. D. Kramer
D. V. Lowe
A. K. McMillan/Pensacola
J. C. Novak/Valley Forge
E. A. Primeau/Pensacola
E. A. Ray/Pensacola
W. M. Smith/Allentown Labs
G. B. H. Speed
E. M. Spurlock/Valley Forge
M. H. Stermon
H. L. Watson/Valley Forge

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ANALYSIS OF MONITOR LOCATIONS



READINGS IN PPM V.C.M

RWW
19 Mar. 74

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3RD FLOOR – N. MIDDLE AISLE-CEN.
2ND FLOOR – SOUTH AISLE CENTER
1ST FLOOR – CENTER AISLE CENTER
NO WIND
LEAK IN VAC. PUMP
COMPRESSOR VENTING
100
0
200
100
0
200
100
0
12 MAR.
14 MAR.
16 MAR.
18

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TABLE I

PERSONAL MONITOR DATA (1)

DATE	SHIFT	FLOOR	PPM VCM
Reactor Building Operators			
2/22/74	3	3	10.82
2/23/74	1	2	5.66
2/23/74	2	2	9.20
2/23/74	3	2	16.67
2/24/74	1	2	15.15
2/27/74	3	1	9.69
2/28/74	2	3	24.66
2/28/74	2	2	23.11
3/ 3/74	1	2	36.79
3/ 3/74	3	3	5.7
3/ 5/74	2	1	57.5 (2)
3/ 5/74	3	3	15.3
3/ 8/74	2	1	16.4
3/10/74	2	2	6.95
3/11/74	2	3	11.06
3/11/74	3	1	9.18
3/15/74	2	1	15.6
Reactor Cleaners (3)			
3/ 7/74	2		9.6
3/12/74	3		16.1
3/13/74	1		51.5
3/13/74	3		15.4
3/14/74	3		16.1

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BLE II

VCM LEVELS - CENTURY OVA ANALYZER

DATE/ TIME	3/11/74 1520	3/11/74 2200	3/12/74 0645	3/12/74 1510	3/12/74 2230	3/13/74 0600
Outside Main Lab	14	<10	<10	<10	14	14
PVC Lab Aisles (Low-High)	31-79	<10-22	<10-17	22-50	<10-22	<10-14
Reactor Building						
First Floor - Compressor Area (Low-High)	79-150	14-31	79-121	22-31	64-150	<10-14
Center Aisle - West End	150-292	22	57	31	93	150
Center Aisle - Center	150-292	57	50	22-31	79	221
Center Aisle - East End	107-150	31	31	31-50	40	107
Second Floor						
South Aisle - East End	150-221	14	14	31	40	135
South Aisle - Center	150	64	79	31-40	71	150
South Aisle - West End	150-292	40	50	31	64	135
Stripper - Oper.'s Desk	292	40	64	31-64	79	135
Middle Aisle - Center	150-292	31	64	31	64	107
Middle Aisle - East End	150	40	22	31-40	79	79
Third Floor						
Operator's Desk	121-135	50	35	64-79	85	221
N. Middle Aisle - West End	150	50	40	50-64	107	221
N. Middle Aisle - Center	121-135	40	31	50-64	121	221
N. Middle Aisle - East End	107-121	40	24	79-93	93	221
S. Middle Aisle - East End	107-121	31	18	150-221	64	221
S. Middle Aisle - Center	135-150	31	31-107	50-79	93	221
S. Middle Aisle - West End	135-150	50	40	50-79	79	292
				Pipe broken: Maint. repairing		Vac. Pump Leaking

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VCM LEVELS - CENTURY OVA ANALYZER

DATE/ TIME	3/13/74 1445	3/13/74 2200	3/14/74 0515	3/14/74 1500	3/14/74 2130	3/15/74 0445
Outside Main Lab	12.5	14	17	14	12.5	10
PVC Lab Aisles (Low-High)	22-31	17-18	14-22	22-31	31-107	22-31
Reactor Building						
First Floor - Compressor Area (Low-High)	150-2,850	40-135	292	150-577	150-292	150-292
Center Aisle - West End	107-135	221	50	79-121	22	107
Center Aisle - Center	107-135	57	79	107-150	79-93	79
Center Aisle - East End	50-57	22	40	79-107	46	31
Second Floor						
South Aisle - East End	50-64	27	50	107	27	22
South Aisle - Center	79-93	46	71	121-135	79-93	79
South Aisle - West End	79-93	85	57	79-93	43	79
Stripper - Oper.'s Desk	64-79	72	31	79	27	64
Middle Aisle - Center	79-93	67	64	79-107	27-40	79
Middle Aisle - East End	79-93	31	31	64-79	107-121	57
Third Floor						
Operator's Desk	150-292	76	93	64-79	33	40
N. Middle Aisle - West End	107-135	60	107	57-64	46	50
N. Middle Aisle - Center	79-107	60	93	64	50	64
N. Middle Aisle - East End	64	58	50	64-79	39	40
S. Middle Aisle - East End	64-79	58	50	50-64	35	50
S. Middle Aisle - Center	79-93	93	57	50	43	50
S. Middle Aisle - West End	150-292 Maint. working on compressor	57	71	50	31	31

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VCM LEVELS - CENTURY OVA ANALYZER

DATE/ TIME	3/15/74 2130	3/16/74 0430	3/16/74 1330	3/16/74 2200	3/17/74 0615	3/17/74 1400
Outside Main Lab	17	<10	<10	12.5	<10	<10
PVC Lab Aisles (Low-High)	22-50	<10-14	22-31	12.5-40	14-22	14-22
Reactor Building						
First Floor - Compressor Area (Low-High)	79-150	50-292	22-31	79-121	31-107	31-50
Center Aisle - West End	50-64	64	64	12.5	22	40
Center Aisle - Center	85	150	79	64-79	64	71
Center Aisle - East End	46	50	22	79	27	22
Second Floor						
South Aisle - East End	57	79	14	71	31	17
South Aisle - Center	85	64	22	79	40	31
South Aisle - West End	57	107	50	40	57	57
Stripper Oper.'s Desk	57	150	31	22	107	50
Middle Aisle - Center	76	150	50	93	64	57
Middle Aisle - East End	64	50	27	93	31	31
Third Floor						
Operator's Desk	79-107	150	31	25	50	40
N. Middle Aisle - West End	64	150	31	35	50	46
N. Middle Aisle - Center	64	107	50	64	50	57
N. Middle Aisle - East End	40	50	31	93	64	40
S. Middle Aisle - East End	45	85	25	107	64	57
S. Middle Aisle-Center	64	150	31	64	50	50
S. Middle Aisle - West End	61	150	22	24	50	40

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VCM LEVELS - CENTURY OVA ANALYZER

DATE/ TIME	3/17/74 2100	3/18/74 0630
Outside Main Lab	<10	14
PVC Lab Aisles (Low-High)	14-79	<10
Reactor Building		
First Floor - Compressor Area (Low-High)	64-107	22-292
Center Aisle - West End	12.5	22-79
Center Aisle - Center	50	64
Center Aisle - East End	22	31
Second Floor		
South Aisle - East End	20	31
South Aisle - Center	57	107
South Aisle - West End	35	150
Stripper Oper.'s Desk	17	93
Middle Aisle - Center	50	93
Middle Aisle - East End	24	64
Third Floor		
Operator's Desk	20	31
N. Middle Aisle - West End	31	40
N. Middle Aisle - Center	40	50
N. Middle Aisle - East End	35	31
S. Middle Aisle - East End	35	40
S. Middle Aisle - Center	50	40
S. Middle Aisle - West End	22	31

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