Snell

Foster D Snell, Inc.
General Laboratories
Hanover Road
Florham Park New Jersey 07932
(201) 377 6700

July 17, 1974

Mr. H. R. Jepson
Operations Manager
Thermoplastics Division
Borden Chemical Co.
511 Lancaster St.
Leominster, Mass. 01452

Re: Contract # L/A-74-167

USDOL Contact: Mr. James Kallenborn
USDOL/OSHA
1726 M Street, N. W.
Room 1162
Washington, D. C. 20036
Phone: 202-961-5360,2342,3273

Dear Mr. Jepson:

The Foster D. Snell unit of Booz, Allen & Hamilton, Inc. is performing a study of the possible economic impacts of alternative standards on the level of worker exposure from VC in the VC/PVC manufacturing industries only. Technical feasibility, timing and costs are key considerations. The questions of this interview touch upon

- engineering controls and work practices
- personal protective equipment
- environmental and personal monitoring
- economic impact estimates for individual plants.

A Subsidiary of
BOOZ • ALLEN & HAMILTON Inc

Your cooperation in this study will be extremely helpful in the determination of practicable standards. We would appreciate obtaining copies of information in your files as these relate to the questions that follow.

Yours truly,

Foster D. Snell, Inc.

Stephen F. Nagy
Project Manager

cc: Joel M. Kushnir

encl.
dlg

August 12, 1974

Foster D. Snell, Inc.
General Laboratories
[illegible] Road
Florham Park
New Jersey 07932

Attention: Mr. Stephen F. Nagy
Project Manager

Gentlemen:

Enclosed is the PVC questionnaire you sent to us per your Contract No. L/A-74-167 from USDOL/OSHA. This questionnaire has been filled in as completely as possible with such data as is presently available.

Per our conversation, I assume you will treat the enclosed information with the utmost confidentiality.

Sincerely,

H. R. Jepsen, Jr.
Operations Manager
Thermoplastics Division

HRJ/cmt
enc.
cc: H. A. Reed
H. L. Schmidt - Columbus

BOR 014722

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(1)

I. GENERAL DATA

1. Where do you make VC or PVC and for what end-use(s)?

~~VC~~ ~~or~~ PVC	Location	Installation Date And Process(es)	Capacity Per Process	Intended End-Use Of PVC	VC Concentration In Resins
	Leominster-Mass.	1956	190,000,000/yr.	Various normal uses for suspension Homo and Acetate Co-polymers	varies -
	Illiopolis Ill.	1961	126,000,000 lbs/yr.		

Both are suspension processes

(2)

COVER EACH MAJOR PROCESS USING A SEPARATE QUESTIONNAIRE

2. Define the number of workers involved in the manufacture of VC or PVC by specific job classification and by process.

Job Classification	Process
Production	
- 124	Suspension
- 34	Latex
-	
Maintenance	
- 48	Suspension + Latex
-	
-	
Supervisory and Support and other	
- 365	Both.
-	
-	
Other	
-	
-	
-	

3. Define historical and recent VC levels in the plant as a function of unit operation for each process.

Unit Operation	Current VC, ppm	How Measured	Historical VC, ppm	How Measured
[illegible]	[illegible]	G.C	[illegible]	
[illegible]	[illegible] 5 [illegible] ppm	G.C	[illegible]	
[illegible]	[illegible] 175 ppm	G.C	[illegible]	
[illegible]	5 [illegible]	40 ppm	G.C	[illegible]
[illegible]	5 [illegible]	125 ppm	G.C	[illegible]
[illegible]	0 [illegible]	20 ppm	G.C	[illegible]

[illegible] [illegible] from this [illegible]
[illegible] [illegible] [illegible]

4. Please cite and explain any:

. Data on illnesses and fatalities linked to wearing respirators.

None

. Data on labor/management negotiations with regard to wearing respirators.

None

. Data on the estimated number of people having to wear the protective equipment and the interval of time the equipment would be worn.

Ceiling Standard	No. Of People	Types of Jobs	Availability And Types Of Equipment	Wearing Time
50 ppm	2	unloading RR Cars	Type C Air Mask	8 hrs/day
	40	Prod Helpers - Kettle Cleaning	Type C Air Mask	2 hrs/day
25 ppm	2	unloading RR Cars	Type C Air Mask	8 hrs/day
	40	Prod Helpers - Kettle Cleaning	" "	2 hrs/day
	40	Operators	" "	2 hrs/day
	50	Maint	" "	2 hrs/day
	24	Shipping	" "	2 hrs/day
ppm	16	Supervision	" "	2 hrs/day

1 ppm not possible

II. ENGINEERING CONTROLS AND WORK PRACTICES

1. What was the cost of equipment and technology used to comply with the 50 ppm emergency standard?

Equipment	Use	Costs		Timing	
		Capital	O&M	Procure	Install
increased ventilation (for winter)		$300,000	$60,000/yr.	New	Fall 1974
Recovery equipment Modifications		$500,000	$10,000/yr.	New	Fall 1974
Approved air Masks & Installation		$10,000	3,000/yr.	Done	

2. Define the changes in operating and maintenance procedures in your efforts to comply with the 50 ppm emergency standard. Indicate the additional production costs.

1. All VCM leaks, or potential leaks are controlled by the use of spot exhausters to prevent high concentrations of VCM in the work place.
2. Where possible, all VCM lines are evacuated into the VCM recovery systems before opening for maintenance. others are bled down into spot exhausters.
3. Exhausters are mandatory for all open kettles.
4. No kettles are to be opened until ready for Transfer.
5. All kettles must be completely blinded before entry and cleaning
6. all personnel entering a kettle must wear a conforming pos. Tive pressure Type air masic.

These are the main points - There are numerous other regulations and procedures.

3. Estimate the costs of equipment and technology required to comply with a possible standard of 25 ppm (ceiling). Consider ventilation also.

Additional Equipment	Use	Costs		Shortest Timing	
		Capital	O&M	Procure	Install
Under Study					

4. Define further changes in operating and maintenance procedures and additional costs.

Under Study

5. Estimate the lowest feasible ppm levels of VC _____ together with the costs to achieve these.

Additional Equipment	Use	Costs		Shortest Timing	
		Capital	O&M	Procure	Install

Under Study

6. What are the attendant changes in operating and maintenance procedures and the costs of these?

Under Study

7. Is it possible to achieve "no detectable" (1 ppm) VC levels and at what costs?

- No -

III. PERSONAL PROTECTIVE EQUIPMENT

1. What are you currently using under the 50 ppm emergency standard and describe the operating conditions?

Containers - Fan Air Mask
a) T.C underwater
b) Vessel Entry
c) Packaging
D) Certain Maintenance Functions
E) Whenever level exceeds 50 PPM

2. What was the purchased cost of this equipment and what are their operation and maintenance costing?

$8000.00

operation & Maintenance Costs being studied

3. What equipment and at what approximate purchased, operating and maintenance costs would you use assuming best effort to reduce exposure through other means?

. To comply with a 25 ppm (ceiling) limit.

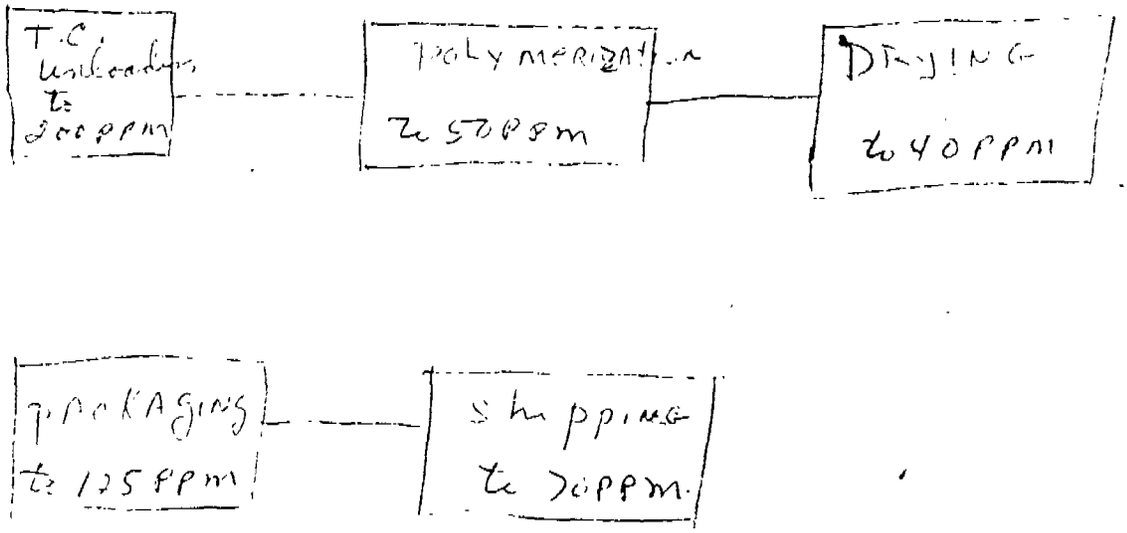
under study

. "No detectable" limit.

Not Possible

PLEASE GIVE US A COPY OF YOUR DATA: BLOCK DIAGRAMS AND RESULTS OF MONITORING

4. Define the current standard operating and maintenance procedures for those unit operations where VC levels are highest.



IV. ENVIRONMENTAL AND PERSONAL MONITORING

1. What are the estimated costs of purchasing necessary monitoring equipment and having samples analyzed?

Monitoring Equipment	No. And Source Of Samples	Equipment Costs	O&M Costs	Timing: Procurement	Timing: Start-Up
Bendix OVA (25 TCs)	48	$200,000	$10,000/yr	in operation	
4 century OVA units	portable	$ 14,000	200/yr	in operation	
2 photovac G.C units		$ 10,000	2,000/yr	in operation	

2. Estimate the cost of initial medical exams and check-ups of employees covered by the standards.

$ 50.00 per employee for each medical exam.

3. How are records kept and their costs?

Records are now filed - microfilming is being considered - costs unknown at this time, but very appreciable.

V. OTHER DATA

1. Estimate the economic impact of compliance on your plant, if possible by major process.

Ceiling Standard	Suspension Process: Capital Costs	Suspension Process: O&M Costs	Suspension Process: Out-of-Pocket Costs*	Change In Unit Production Costs (¢ per lb. or similar unit)
50 ppm	Increased production costs by 10-15%			
25 ppm	Under Study			
ppm				
1 ppm	Not Possible			

* R&D, management and other personnel's time, consultants, etc.

Cost of implementing and backing up a system of personal protective equipment.

under study

Estimate the reduction in productivity (plant output) due to the use of personal protective equipment.

@ 50 ppm 10 - 15%

@ 25 ppm under study

@ ppm

@ 1 ppm not possible

Ceiling Standard	Emulsion Process (Or Other) Capital Costs	O&M Costs	Out-of-Pocket Costs *	Change In Unit Production Costs (¢ per lb. or similar unit)
50 ppm	N/A			
25 ppm				
ppm				
1 ppm				

* R&D, management and other personnel's time, consultants, etc.