BFGoodrich INTER-ORGANIZATION CORRESPONDENCE

TO	FIELD POINT OR DEPT. & BLDG. NO.	DATE YOUR LETTER
C. C. Lee	Niagara Falls	
FROM	**FIELD POINT OR DEPT. & BLDG. NO.**	**DATE THIS LETTER**
T. S. Bialke	Akron - D/0020, 5-H	9-17-84

SUBJECT

Industrial Hygiene Survey; August 13-16, 1984

An industrial hygiene survey of the Niagara Falls plant was conducted during the period August 13-16, 1984. All previous survey recommendations have been satisfactorily completed. Efforts to control noise levels in the Niro bagging area have been successful. Audiodosimeter readings taken on the Niro bagger show reduction from 200% to 85-87%. All plant employees who must wear respirators are being annually fit-tested. New laboratory hoods have been installed.

Few items were found that need attention. The first and second floors of Geon North are to be posted as noise hazardous, as they exceed 85 dBA.

My compliments to Messrs. Lee and Reid for their interest and support of the plant's industrial hygiene program. Their interest is demonstrated by the plant's enthusiasm in attacking the Niro bagger noise problem and improving the laboratory hood ventilation. Their cooperation in making the survey run smoothly made the visit an enjoyable one.

Please respond to the status of the recommendations within 120 days and upon completion of all items on the anniversary of the survey, whichever comes first.

T. S. Bialke/jwm

T. S. Bialke

v

cc: C. Reid, Niagara Falls
F. Hovey/D. Brooks, Shawinigan
G. Lefebvre/H. Waltemate, Cleveland
H. Botelho, Cleveland
R.A. Guyton, M.D./R.A. Kelley
~~H.W. Dietz, M.D./R.B. Katzenmeyer, Jr.~~ /file

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Status of Previous Survey Recommendations:

1. All Niagara Falls employees required to wear respirators have been fit-tested with irritant smoke.

2. N-hexane is no longer used as a catalyst; solvent monitoring not required.

3. Sampling procedure for personnel monitoring of VCM is following published requirements.

4. Personnel monitoring for vinyl acetate shows exposures to be less than 1 ppm.

5. No. 2 Niro bagger noise exposures reduced by muffling air exhaust of bag compactor and installation of noise barriers (see Discussion).

6. Maintenance shop parts cleaning tank has been provided with a fusible linked lid.

7. All portable eyewash fountains are being noted with date of last water change. All water in fountains being changed every two months.

Recommendations (1984)

1. Post Geon first and second floor areas as noise hazardous; require that hearing protection be worn when working in these areas.

2. Add to goals for 1985 and upcoming years the requirement of evaluating employee exposures to three agents not previously monitored. Suggest employee exposures to isotar, TCE and parts cleaning solvent in machine shop be evaluated. Initially, obtain one sample per exposed employee. If results suggest that exposures near the TLV exist, further monitoring will be necessary.

3. Ensure that employees working on the VGA during activities requiring them to open up the system wear airline respirators. See Discussion and sample result No. 5, attachment II.

Industrial Hygiene Audit Checklist:

Attachment I is the completed checklist for the 1984 Niagara Falls IH survey. The checklist is a guide used during the survey to ensure that all areas of a plant's IH program are being addressed. The checklist is based on the BFG Chemical Group industrial hygiene program, standard IH-101.

The Niagara Falls IH program is in very good shape with 61 items satisfactory and only one item needing attention. You will note that items that do not apply to the Niagara Falls plant pertain to the USA OSHA law.

Discussion:

All previous survey recommendations have been satisfactorily addressed. The plant's respirator program has been improved and all employees who require a respirator have been properly fit-tested. Records of the fit testing are complete.

Noise exposures at the Niro bagger have been substantially reduced through control of noise sources. Last year's noise dosimeter results indicated bagger exposures to be as high as 214%. This year's dosimetry results showed the bagger's exposure to be 86-87%. (See Attachment II, Samples 1 and 2).

Discussion (con't)

The plant is to be congratulated on doing an excellent job of reducing noise exposure. The wearing of hearing protection by employees in noise hazardous areas is much improved over previous years; I did not observe any employee in a posted area without hearing protection. Employees with shifts in their audiograms are being counseled and instructed in proper fitting of hearing protection.

The Geon North building, first and second floor noise levels were measured in the 90-92 dBA range. These areas were not posted as noise hazardous. As indicated in the Recommendations, these areas need to be posted. Noise dosimeter monitoring on Geon N employees obtained by the plant show that employee exposures above 50% are occurring. No readings over 100% have been documented.

The Niagara Falls plant issues a year-end summary of its personnel monitoring results and monitoring goals for the next year. To anticipate future health or regulatory concerns, a data base of current employee exposures to heretofore not monitored agents is needed. The recommendation to collect personal sampling data on previously unchecked chemicals in the workplace is directed at initiating this data base.

Personnel monitoring was conducted on Geon South employees to document exposures to vinyl acetate, vinyl chloride and trichloroethylene. All results were well below published exposure limits (see results 3-4, Attachment II). A maintenance man working on the VGA system was also monitored for VCM (see result 5, Attachment II). The maintenance man did not wear a respirator. The result of 5.6 ppm suggests that there were times during his work on the VGA when levels of VCM in or around the area were much higher. Therefore, the recommendation to wear a respirator is aimed at protecting the worker against short-term high VCM exposures encountered from VCM task work.

Two new fume hoods were installed in the plant laboratory. The average flow rates through the hoods were found to be 150-200 fpm. These flow rates are good, too good in fact. Research by the Brecksville environmental health lab has shown that a hood with an average of 85-100 fpm is adequate. Reducing the flow rates in both hoods to 85-100 fpm would result in conserving heat in the winter and airconditioning in the summer months.

TSB

IH-101A
Revised: 8/8/84

CHEMICAL GROUP INDUSTRIAL HYGIENE AUDIT CHECKLIST

LOCATION Niagara Falls, CA DATE 8/13 - 8/16/1984

S = Satisfactory
NA = Needs Attention
DNA = Does Not Apply

A. INDUSTRIAL HYGIENE PROGRAM ADMINISTRATION

1. Industrial Hygiene Coordinator

a. Named	S
b. Knowledgeable	S
c. Walk-throughs	S

2. Periodic Industrial Hygiene Program Reports

a. Timely	S
b. Content	S
c. Year-end Summary	S
d. Goals for Next Year	NA

3. Medical Services

a. Physical Examination	S
b. Medical Equipment Certification/ Calibration	S
c. Training	S
d. Illness and Complaint Investigation	S

4. Hazard Inventory

a. Complete	S
b. Annual Review and Update	S

5. Chemical Hazard Review and Use

a. Committee Established	S
b. MSDS	
1. Available	S
2. Employees Trained in Use	S

6. Reply to Corporate Surveys

a. Initial	S
b. Final Report	S

7. Training

a. Hazard Communication	DNA
b. Vinyl Chloride	S
c. Lead	DNA
d. Acrylonitrile	DNA

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S = Satisfactory
NA = Needs Attention
DNA = Does Not Apply

B. INDUSTRIAL HYGIENE PROCEDURES

1. Respiratory Procedure

a.	Written	S
b.	Selected per Hazard	S
c.	Training	S
d.	Fit Testing	S
e.	Medical Examination	S
f.	Cleaning	S
g.	Storage	S
h.	Inspection	S
i.	Approvals	S
j.	Usage	S

2. Asbestos Handling and Disposal

a.	Sources Identified	S
b.	Monitoring	S
c.	Medical Examination	S
d.	Demolition and Removal	S
e.	Protective Clothing	S
g.	Written	S

3. Industrial Hygiene Sampling

a. Strategies

1.	OSHA compliance	DNA
2.	Hazard Evaluation	S
3.	Special Requests	S

b.	Sample Procedures	S
c.	Analytical Procedures/Cross Check Program	S
d.	Employee Interview	S

4. Hearing Conservation and Noise Control

(Use Hearing Conservation Audit Checklist)

Total Satisfactory	DNA
Total Needs Attention	DNA

5. Radiation

a.	Hazards Identified and Labeled	S
b.	License Requirements	S
c.	Records	S
d.	Dosimetry Program	DNA
e.	Periodic Leak Checks	S
f.	Radiation Protection Officer	S

IH-101A
Revised: 8/8/84

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6.	Ventilation for Health Hazard Control	
	a. Periodic Flow or Maintenance Checks	S
	b. Laboratory Hoods	
	1. Yearly Flow Checked	S
	2. Rating or Flow-Rate Posted	S
	c. Modifications Reviewed	S
	d. New Systems Reviewed	S
7.	Leak Detection	
	a. Written	S
	b. Area Monitoring Response	S
	c. Leak Repair Control	S
8.	I.H. Equipment Calibration	
	a. Audiodocimeters	
	1. Daily Field Calibration	S
	2. Laboratory Calibration	S
	b. Sound Level Meters	
	1. Daily Field Calibration	S
	2. Laboratory Calibration/Three Years	S
	c. Acoustic Field Calibrators Every Three Years	S
	d. Radiation Detection Device - Annually	DNA
	e. Area Monitoring Devices	S
	f. Personnel Monitoring Pumps	S
9.	Laboratory Safety	
	a. Lab Hoods Adequate for Hazard	S
	b. Lab Procedures Reviewed	S
	c. Personnel Protective Clothing and Equipment	S
10.	Totals	
	Satisfactory	21
	Needs Attention	1

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ATTACHMENT II.

PERSONNEL MONITORING RESULTS
Niagara Falls, Aug. 13-16, 1984

NOISE [1].

Sample No.	Date	Employee	Job	Hearing Protection	Sample Time	% 12 Hr. TWA	dBA Equivalent
1.	8/14	N. Lynsden	#2 Niro Bagger	Yes	401 min.	62.8	85.6
2.	8/15	R. Arnold	#2 Niro Bagger	Yes	480 min.	99.1	87.0

ORGANIC VAPORS [2].

Sample No.	Date	Employee	Job	Hearing Protection	Sample Time	ppm
3.	8/14	T. Morris	#1 Oper., Geon S	No resp.	383 min.	VCM < 0.1 VAC < 0.4 TCE < 0.2
4.	8/14	R. Dekker	#2 Oper., Geon S	No resp.	380 min.	VCM < 0.1 VAC < 0.4 TCE < 0.2
5.	8/15	T. Canham	Maint. Mechanic	No resp.	375 min.	VCM 5.6
6.	8/15	G. Johnson	#1 Lab Operator	No resp.	380 min.	EDC < 0.7

[1]Noise data collected with a duPont audiodosimeter with a threshold of 80 dBA, criteria of 90 dBA and an exchange rate of 5 dBA.

[2]Organic vapor results collected with Sipin pumps operating at a flow rate between 17-42 cc/min. Collection media used was a 100/50 mg charcoal tube; GC analysis by the Brecksville H & E laboratory.

VCM - vinyl chloride	TLV = 2.0 ppm (OMH)
VAC - vinyl acetate	TLV = 10.0 ppm (ACGIH)
TCE - trichloroethylene	TLV = 50.0 ppm (ACGIH)
EDC - ethylene dichloride	TLV = 10.0 ppm (ACGIH)

TO	FIELD POINT OR DEPT. & BLDG. NO.	DATE YOUR LETTER
C. C. Lee	Niagara Falls	
FROM	**FIELD POINT OR DEPT. & BLDG. NO.**	**DATE THIS LETTER**
T. S. Bialke	Akron - D/0020, 5-H	6-10-83

SUBJECT

Industrial Hygiene Survey; May 10-13, 1983

An industrial hygiene survey was conducted at the Niagara Falls chemical plant during the period May 10-13, 1983. Nine recommendations from the 1981-82 surveys have been satisfactorily completed. Three recommendations need minor refinements before they can be considered complete, i.e. recording results of employee respirator exams in medical file, fit testing of employees with different types of respirators that they may have to wear, and increasing sampling rates for VCM monitoring.

Items that need attention as a result of the 1983 survey include control of noise at the PVC bagging stations, n-hexane and vinyl acetate exposure assessments. An inventory of chemical and physical hazards by job class was completed to fulfill requirements of the medical information system.

I found housekeeping in the plant to be very good. Also, the wearing of hearing protection in posted noise hazardous areas was being observed.

I want to thank C. Reid, B. Hawkins and the Niagara Falls management for their cooperation and assistance in making this survey profitable. Please respond to the status of recommendations in this survey within 60 days and quarterly thereafter until all items have been acted upon.

T. S. Bialke

T. S. Bialke

v

cc: F.Houey/D.A.Brooks, Shawinigan
G.Lefebvre/H.Waltemate, Cleveland
H.C.Bothelo, Cleveland
R.A.Guyton,MD/R.A.Kelley
~~H.W.Dietz,MD/E.B.Kaffenmeyer, Jr.~~

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Items from Previous Survey

Recommendation	Action taken
1. (1981) Replace eyewash fountain, third floor, Geon south.	1. Completed.
2. (1981) Provide employees who are required to wear respirators with a respirator approval exam per BFG OHP 1.17.	2. Partially complete. Respirator approval exam being given, but results not being recorded in employees' medical exam files.
3. (1981) No formal reply to IH survey.	3. Reply to 1981 survey received and is satisfactory.
4. (1982) Document respirator usage by adopting a written respirator procedure.	4. Respirator procedure written; action complete; see current findings.
5. (1982) Incorporate SPCC procedure into the plant's protective clothing and equipment requirements.	5. Action complete.
6. (1982) Establish VCM monitoring requirements through a written procedure.	6. Procedure written; see current findings.
7. (1982) a. Post areas greater than 85 dBA as noise hazardous and require hearing protection to be worn.	a. All areas except PVC bagging posted. Compliance with hearing protection requirements good.
b. Provide nurse and doctor with audiodosimeter results.	b. Results being provided on an "as needed" basis.
c. Calibrate noise dosimeter annually.	c. Complete; dosimeters being calibrated annually.
8. Note respirator and hearing protection usage when employees are being monitored.	8. Monthly environmental report being noted. Action complete.
9. Install GC line particulate filters in Geon S.	9. Action complete; filters installed.
10. Tighten Bolton filters on GC lines, Geon N.	10. Action complete; filters tightened.

Current Survey Findings	Recommendations	Responsibility	Exp. Date of Comp.
1. Respirator procedure does not require fit testing of all types of respirators used at Niagara Falls.	1. Conduct fit testing of employees with employee wearing each type of respirator he will be required to wear. Does not apply to wearing of disposable-type particulate respirators.		
2. a. Pigment room, 3rd flr. Geon S., face shield found to be unserviceable.	a. Replace face shield and ensure that the operator uses it whenever he handles catalyst.		
b. N-hexane used as solvent for catalyst make-up. Catalyst make-up tank is refrigerated and local exhaust provided to tank opening and to catalyst container filling station.	b. Obtain 3 personnel task monitorings for n-hexane during catalyst make-up operation and during filling of n-hexane holding tank. Procedure has been provided.		
3. VCM monitoring procedure requires flowrate of 10 cc/min. for sample duration of 4-7 hours.	3. Increase VCM sample flowrate to 25-30 cc/min. with minimum time for a long-term sample of 6 hours.		
4. Plant has obtained one sample for vinyl acetate. Four samples were collected during this survey. Results are listed in Table I. See Discussion.	4. More personnel monitoring for vinyl acetate needs to be done to properly evaluate employee exposure. Obtain at least 3 samples per exposed job class per request dated 3-11-83.		
5. Noise. Four employees were monitored for noise using a duPont MK-1 dosimeter set with a threshold of 80 dBA and a criteria of 90 dBA. Table II contains these results. All employees monitored worked 12 hour shifts: process helper Geon S., noise exposure 121.4%; No. 2 dryer operator had noise exposure of 132.1%; No. 2 Niro bagger's noise exposure was 214%.	5. The Ontario Ministry of Health has proposed a noise standard of 90 dBA for a 40 hour work week measured with dosimeters having 85 dBA thresholds. This is equivalent to having 5 eight hour day exposures to 100% noise dosimeter readings or three and one-third days exposure to 100% noise dosimeter readings. The process helper and dryer operator noise exposures, if maintained over a 3-day period, would result in the worker being exposed at the OMH standard. The #2 Niro bagger's exposure, however, is clearly excessive.		

Current Survey Findings (con't)	Recommendations	Responsibility	Exp.Date.	Compl.
5. Noise (con't)	Both the #2 dryer operator and #2 Niro bagger received their noise exposure from the bagging operation. Compressed air from the bagger needs to be muffled. The plant has an ER in process to isolate bagging station from the silo. The bagging area needs to be posted as noise hazardous and hearing protection made mandatory.			
6. Maintenance shop parts cleaner solvent observed without a lid.	6. Install a lid on parts cleaning tank and keep lid closed when not in use.			
7. Portable eyewash fountains not posted with date of last water change or maintenance check.	7. To ensure that the water in the portable eyewash fountains has been periodically changed and is kept filled to the proper level, each portable eyewash fountain must be labeled with the date it was last inspected and water changed. A punch-out tag system, such as that used to record inspection of fire extinguishers should be adequate.			

Discussion:

Table I contains results of personnel monitoring for vinyl acetate (VA) at Niagara Falls. Sample #1 is a task sample taken in the tank farm during a VA unloading operation. No detectable level of VA was found. Four other samples collected indicated VA exposures to be below 1 ppm; the current ACGIH TLV is 10 ppm.

While these results are encouraging, more monitoring needs to be done so that we can properly evaluate worker exposures to vinyl acetate.

This year's survey afforded the opportunity for me to complete a hazard inventory of the plant. Carl Reid and all Niagara Falls production managers were most helpful in assisting with this inventory. The inventory lists by plant job class all physical and chemical agents an employee working in that particular job class may be exposed to. It also attempts to estimate the degree of exposure. Once the inventory is computerized, it will allow the medical department to run epidemiological studies and track potential health problems that may be associated with plant exposures.

This year's survey also provided an opportunity to discuss industrial hygiene concerns regarding the possible relocation of the Kitchener PVC compounding line to Niagara Falls. The discussion included control of noise from cubers, mills, and mill drives, pallet transfer and strip blow-off. Control of noise is best achieved through isolation of the noise source by appropriate sound barriers.

Toxic stabilizers and pigment dust control measures were discussed. Booths for pigment weighing need proper design and flowrates of 150-200 fpm at weigh point. Empty bags need proper handling to prevent dust release. Henschel loading needs ventilation. Automatic scales fed by hoppers through an air pallet system reduces manual handling of pigments and worker exposures. Plasticizers should be pumped from bulk storage to eliminate open buckets. Henschel, extruders, mills, and strip conveyors need ventilation to remove stabilizer and plasticizer fumes from hot PVC.

A central vacuum system is a must to facilitate clean-up. Much experience has been gained by U.S. plants toward addressing exposures from PVC compounding. It would be very beneficial for individuals involved in the relocation project to visit the Louisville, Avon Lake, and Pedricktown PVC operations to view the controls implemented at each of these chemical facilities. I will be available to review proposals, offer suggestions, or refer you to other people within the company who are "in-the-know" to ensure that all necessary precautions are engineered into the line before installation. This is an excellent opportunity for "doing it right the first time".

TSB

CORRECTED COPY
6/14/83

TABLE I.

VINYL ACETATE RESULTS
Niagara Falls; May 1983

Sample No.	Name	Job	Date	Sample Time (min.)	Vinyl Acetate Conc. (ppm)
1.	Willard Arseneault	Tank Farm operator	5/11	10	LDL*
2.	B. Burley	#1 Charge oper.	5/11	378	0.27
3.	P. Marshall	Recovery oper.	5/11	377	0.8
4.	P. Marshall	" "	5/12	390	0.21
5.	E. Ryan	Charge oper. & foreman	5/12	389	0.11

*LDL = less than detectable limit.

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TABLE II.

NOISE DOSIMETRY RESULTS*
May 11, 1983

Name	Job Title	Location	H.P. Worn	12 Hr. TWA
K. McArdle	Stationary Engr.	Boiler house	Yes	86%
N. Lunsden	Process helper	Geon S. poly bldg.	"	121.4%
D. Potter	#2 dryer oper.	Dryer bldg.	"	132.1%
W. Fisher	#2 Niro bagger	Dryer bldg.	"	214%

* Instrument characteristics:

threshold = 80 dBA
criteria = 90 dBA
exchange rate = 5 dBA