

BFG Goodrich**INTER-ORGANIZATION CORRESPONDENCE**

TO	FIELD POINT OR DEPT. & BLDG. NO.	<i>File</i>	DATE YOUR LETTER
<u>Plant Managers; Health & Safety Personnel</u>			
FROM	FIELD POINT OR DEPT. & BLDG. NO.		DATE THIS LETTER
<u>T.S. Bialke</u>	<u>Akron - D/0020, 5-H</u>		<u>11-5-82</u>
SUBJECT			
<u>BFG Chemical Group Pedricktown Facility</u>			
<u>OSHA Industrial Hygiene Inspection</u>			

In July 1982 the Pedricktown chemical plant was visited on four separate occasions by a compliance officer from the Regional OSHA office in New Jersey. The purpose was to conduct a comprehensive industrial hygiene inspection of the Pedricktown chemical plant. The plant was inspected because its chemical operations are included in OSHA's list of high health hazardous industries. The end result of the inspection was that no health problems were found and the plant received no citations.

I was pleased, but not surprised, that the Pedricktown facility received no citations since the plant has been one of the leaders in developing and maintaining a sound and effective industrial hygiene program.

The compliance officer conducted a comprehensive inspection of Pedricktown's programs, procedures, monitoring results, training, and physical examination requirements. Attached is a copy of the compliance officer's narrative of his inspection and the plant's description and impression of the inspection. I am sending these to you to provide an insight to what a comprehensive OSHA industrial hygiene compliance inspection entails. I encourage you to review the narratives to ensure that your facility would be adequately prepared for a similar compliance inspection.

Please note that some portions of the OSHA compliance officer's narrative have been blanked out. These portions have been deleted to protect the confidentiality of the workers interviewed, or to protect company trade secrets. Both the OSHA and Pedricktown narratives are BFG restricted.

T.S. Bialke
T. S. Bialke, CIH

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A. Nature and Scope

This inspection was initiated because BFGoodrich SIC number was included on the high hazard industry list (health). A complete general schedule industrial hygiene inspection was conducted. BFGoodrich had a complete general schedule safety inspection 4-15 and 4-16-81 (see S4522-030). No violations were found. The last complete industrial hygiene inspection was performed between 7/11/77 and 12/29/77 (see L4468-049). Other than serious noise violations were determined.

B. Opening Conference

A standard opening conference was held with BFGoodrich health and safety personnel (see OSHA 1A for those present). The health high hazard list (as per SIC #) was explained in detail. During the opening conference, the vinyl chloride, acrylonitrile, noise, lead and antimony programs were thoroughly reviewed prior to the walkaround.

BFGoodrich has a comprehensive VCM program (see P-1 to P-11). BFGoodrich defines two buildings as "regulated" areas - Building 512 mass resin and Building 513 pearl paste/resin. These buildings, as well as 531, 532, 534, and 538 (large poly), have continuous air monitoring using the Bendix multi-point gas chromatograph to detect any VC in any of these plant areas.

Personal monitoring of technicians or lead technicians is done in the paste, mass and large poly units. There is approximately 3-4 technician or lead technicians in each of these three areas on four different shifts. Approximately 45 are routinely working in VC areas. Maintenance personnel occasionally work in the VC area. BFGoodrich samples each employee in the new poly area monthly for VC exposure. Employees in the mass and paste area are sampled semi-annually. Prior to 1982, the mass and paste areas were sampled quarterly, but since a significant data base had been established and exposure is below the action level (barring unusual circumstances), sampling has been reduced to twice/year. The new poly area (construction completed and operation began 1/82) will be sampled monthly for at least one year to establish a data base to determine levels of exposure. A review of vinyl chloride monitoring for the following jobs in 1981 showed:

1. Technician - Dispersion Area: Of 10 monthly TWA readings, a range of .02 - 1.66 ppm was found.
2. Lead Technician - Mass Resin Area: Of 10 monthly TWA readings, a range of .01 - 1.73 ppm was found.

_____ was determined. In 1982, BFGoodrich sampled the dispersion and mass resin area twice. 1982 sampling results are as follows:

	<u># of TWA Samplings Performed</u>	<u>Month of Sampling</u>	<u>Range of Sampling in ppm</u>
Paste Unit	9	April	.06 - 2.63 ⁽¹⁾
	3	May	.02 - .15
	9	June	.01 - .72
Mass Resin	5	April	.14 - .9
	6	May	.01 - .48
	3	June	.01 - .11
Poly (Large)	15	April	.03 - 1.1 ⁽²⁾
	14	May	.01 - 7.2 ⁽³⁾
	15	June	.01 - .52

- (1) The 2.63 ppm reading was obtained when the employee was changing the seal on a water filter. A respirator was used during the operation
- (2) The 1.1 ppm reading was obtained when an employee was changing a filter. Respirator was worn.
- (3) In this range, two high readings were obtained. 1.28 ppm TWA was obtained when an employee was pumping out a filter on the bottom of poly that catches out-sized particles (respirator used). A reading of 7.02 ppm was obtained when the seal of the H₂O filter was being changed (respirator used).

The sampling schedule adheres to OSHA standards as most readings are well below the action level. Sampling results are obtained the day after sampling as BFGoodrich has an IH lab on the premises.

Other plant areas, such as the maintenance shop and the compound area (traditionally not VC areas), are monitored (personal monitoring) on a yearly basis. TWA's reviewed were .01 - .2 ppm.

Area monitoring is done with the Bendix multi-point gas chromatograph. The new poly area has 24 sampling points at 13 different locations. The system has two Bendix gas chromatographs. If one system malfunctions, the second can pick up points to sample in the same general location. The sampling locations are as follows:

<u>Zone</u>	<u>Building</u>	<u>Sampling Area</u>	<u># of Pts.</u>
1	538		1
2	535		2
3	531		2
4	531		2
5	531		2
6	531		2
6	531		2
7	535		2
8	534		2
9	531		2
10	531		3
11	531		1
12	531		2
13	532		1

Each sampling port takes a VC sample once every 12 minutes. Hence, each area is effectively sampled once every six minutes. _____ stated 9% of the air monitoring readings taken in the last year in both the old and the new areas were less than 1 ppm.

The results of area monitoring done on 7/15/82, a day selected at random

<u>Zone</u>	<u>Avg. Conc.</u>	<u>Local Max. Conc.</u>	<u>Time of Max. Range</u>	<u>Range A Reading Less Than 1 ppm</u>	<u>1 - 5</u>	<u>5 - 100</u>	<u>100</u>
1	.144	1.07	254	118	1	0	0
2	.050	.452	332	120	0	0	0
4	.029	.185	830	120	0	0	0
5	.027	.404	536	119	0	0	0
6	.048	1.18	1,258	118	0	0	0
7	.017	.196	2,214	119	0	0	0

The maximum concentration on 7/16/82 was 1.06 ppm and on 7/13/82 was 2.99 ppm.

At each of the sampling zones, a flashing light alarm system signifies exposure; an amber light indicates exposure 1-5 ppm; a red light indicates exposure above 5 ppm. (See P-3 for employee requirements at each level).

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A similar Bendix system is present in the original VC area (513 - paste/dispersion). The average concentration on a day selected at random (7/13/82) was less than 1 ppm at six of seven sampling locations. On 7/16, the highest average concentration was .54; 7/20 and 7/21, the highest average concentration was less than 1.0 ppm. Written reports of the monitoring data are prepared by the lead technician at the end of each shift (see B).

The excursions and reasons for such are reported. The Bendix is present in Building 512 and 513 - Mass Resin and Pearl/Paste Resin. The Mass Resin Building has six operating monitoring stations, one for each autoclave. The VC monitor in this area, the oldest VC area of the plant has a strip chart which monitors VC exposure. Ambient levels of .3 to were found. Strip charts are maintained for at least the last 10 years VC results in other areas are stored in the computer.

The VC monitoring systems are calibrated daily (spot-checked) by injecting 10 ppm into the system. A flow meter check with flow meter a bubble tube used to check any suspected air flow problems.

VC extrusions are recorded on the computer console for areas of VC level in excess of 100 ppm and 900 ppm. P-1 and P-2 outline emergency procedures should the Bendix GC analysis fail. Operators (technicians and lead technicians) use the HNu photo-ionization unit, specific for VC to pinpoint sources of alarm used by the system; i.e., leaks.

The tankfarm area where the VC is received by truck or rail is equipped with a Bendix total Hydrocarbon Analyzer. There are 12 points located throughout the loading area - pumps, tower, and spheres. The console alarm gives a sound alarm at 25 ppm VC. At 10% of the LEL (4,000 ppm), an alarm goes to the computer; at 25% of the LEL, all pumps automatically shut down and an additional computer alarm is activated.

The VC Bendix 9000 system also activates a water deluge at 50% of the LEL and activates ventilation when 5 ppm is sensed on the system.

The refrigeration building has an automatic ammonia detection system. There are eight points. The alarm system is activated at 50 ppm. There is one engineer in charge of the refrigeration unit. Approximately 16-technicians are qualified to work at the unit. This unit, as well as the VC system, is a closed system which operates without employee constant monitoring. The employee enters the refrigeration unit only when a problem exists, so any employee exposure would be limited.

The vinyl chloride standard 1910.1017 was reviewed thoroughly during the opening conference. Respiratory protection is outlined in P-3 and P-4

for the VC area. A solid amber light is activated at 1-5 ppm, a flashing red light at 5 ppm, and a computer alarm at 100 ppm, alerting employees of protection required at the time of the alarm activation. All employees who work in an area that handles VC carry an MSA half-face continuous air supplied respirator on their person (usually in a container around their waist). Breathing air stations are located throughout the VC areas with MSA-airline filter point #81857. These filters are changed every three months. MSA full-face respirator (air supplied) and the Scott air pack is also available to employees. Conditions for the use of respirators and protective clothing are outlined in P-4 and hazardous operations requiring the use of respirator protection are outlined in P-6, P-7, P-8, P-9 and P-10. Emergency operations are outlined in P-10 and P-11, including vessel entry. The Scott air packs are checked _____ for adequate alarm systems when employees are retrained monthly on the use of the air pack. Weekly, all Scott air packs are checked for air supply.

BFGoodrich meets requirements for an acceptable respirator program. Respirators are selected on the basis of hazards. The user is instructed in initial employment and at frequent intervals (monthly on Scott air packs, monthly at safety meetings on air line respirators, and yearly on the usage of all respirators for the VC areas) concerning respirator usage. Respirators are cleaned at least daily (and more depending on usage) with an alcohol solution. Respirators are issued one per employee and are stored in individual "respirator" lockers. The lead technician in each area examines respirators on a weekly basis. Whenever an employee enters a vessel, a standby person is nearby for emergency rescue.

The training program for VC is given any employee who will work in a VC area upon initial employment and annually thereafter. The nature of the hazard, including the carcinogenic potential, is outlined in a slide presentation and workbook distribution. The employees are tested on material presented - respiratory protection, the fire hazard, monitoring program, medical surveillances, and emergency procedures and conditions which may result in the release of VC (see P-1 to P-11 for some elements of programs -- all of which are distributed to employees).

The medical surveillance program is in effect for all employees who regularly work in the VC area. Physical exams are given annually for those employees in PVC manufacture less than 10 years and twice yearly for those employed in PVC manufacture more than 10 years. The content of their physical is shown on M-1 and M-2. Total bilirubin, alkaline phosphate, SGOT, SGPT and gamma glutomyl transpeptone tests are given, as well as all requirements listed in 1910.1017(k)(1)(i) and (ii). Each affected employee is given a statement from the physician regarding his suitability for continuation of work in a VC area. Discussion with the

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plant nurse revealed that no employee who underwent the surveillance was told he could not continue to work in the VC area. I asked her if any of the employees in the medical surveillance program had shown any abnormalities in the testing performed at the physical examination. The nurse (who has worked for BFGoodrich more than 10 years) stated that fortunately no anomalies related to VC exposure had ever been detected. Laboratory analysis is done by Methpath Labs and examinations performed by contract physicians who average approximately 25 hours/week at BFGoodrich.

Signs and labels are located at the entrance to regulated areas 512 and 513 stating "cancer suspect agent area - authorized personnel only". An authorized personnel list is found on P-5, as are areas for eating facilities (far from VC exposure).

Acrylonitrile is used in the latex operation at BFGoodrich. I reviewed the air monitoring results. The personal monitoring on the technician was .04 ppm - .46 ppm taken 3/1/81 and 9/1/81. The poly cleaner had a result of .07, .02, .04 ppm for 5/7 and 8/81. Sampling is performed every six months (per employee). These results are below the action level.

Air purifying respirators (both half and full-face) are used in the latex area. Qualitative fit testing is done using an irritant smoke tube. Written emergency procedures are included in the initial and annual training. These procedures include spill cleanup and map location of emergency equipment in the latex area. Boots and rubber gloves are provided whenever contact with AN is possible. The AN area has several eyewash and shower facilities in the area.

Medical surveillance - an initial and annual complete physical, including chest x-rays and fecal occult blood screening, for all workers 40 years of age or older. The examining physician has available a description of employees duties, a copy of the standards and its appendices, and the monitoring results. Each employee receives the results of the medical exam and a physician's written opinion whether any condition would place an employee at an additional safety risk because of his exposure to AN. The plant nurse stated no acrylonitrile related illnesses or detected test results were ever found.

BFGoodrich has an extensive AN training program. It is offered on initial employment and annually thereafter to all employees who work in AN areas. The training includes a corporate slide and tape presentation with an accompanying workbook. The OSHA standard is received, the cancer hazards discussed, and the MSDS distributed. All operations which involve possible exposure to AN are reviewed. Specific attention is

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directed at those jobs requiring a full-face respirator (air supplied) and protective body clothing. Tank entry procedures are particularly stressed. The use of the Scott air pack is reviewed (interim reviews are done on a monthly basis), as are emergency procedures for spills and accidents. The monitoring (air) and medical surveillance program is fully explained. Particular emphasis in the training program is made on Appendix A and B.

BFGoodrich uses lead in the compounding area. On any given shift, one employee may be exposed to lead. The lead program is listed on pages L to L-9. A recent modification of lead handling (the use of an air pallet system as a replacement for hand mixing) has led to a significant reduction in exposure. The pallet system was implemented in early 1982. The most recent monitoring results are as follows:

May (5) - compounders sampled

Pb	79.76 ug/m3	-	hand mixing performed
	102.25 ug/m3	-	pallet operating-problem with ai
			pallet supplied
	36.81 ug/m3	-	pallet operating
	37.53 ug/m3	-	pallet operating
	15.94 ug/m3	-	pallet operating

April (2) - compounders sampled

Pb	65.00 ug/m3	-	pallet operating
	32.26 ug/m3	-	pallet operating

Pb for 1981 before pallet - 12.00 ug - 25.85 ug - 103.35 ug - 77.1 ug - 58.6 ug/m³

admitted that the pallet system has not had enough time to work out the kinks. Hence, hand-mixing is something necessary. Since the lead mixing is rotated among the weighman, mixer, mill operator and rover. The employee works one week in four mixings. Monitoring is performed at least quarterly. The pallet system is expected to lower levels below 50 ng/m3 and be perfected by the end of 1982.

Two types of respiratory protections are available - MSA half-face supplied air respirator and the Racal Helmet attached to the supplied a system. Since both are positive pressure respirators, no quantitative test is performed. The compliance program for lead is outlined in L-3, describing the engineering control and work practices. L-4 and L-5 also outline steps for the proper care of respirators. Mechanical ventilati in excess of 150 ft./min. is present at the weigh station. Protective

clothing, housekeeping, personal hygiene and vacuuming programs are outlined in L-5, L-6, and L-7.

Employees in the lead area are given blood lead and ZPP level sampling every six months. A review of the last year's results showed no employee with levels above 40 ug/100g of whole blood. Annual physicals are not given to these employees as no one's blood has exceeded 50. Blood leads are analyzed by the BFGoodrich corporate laboratory in Brecksville, Ohio. Employees receive results within five days of receipt of results.

Training in the hazards and procedures for handling lead is given yearly to all affected employees. L-1 to L-9 is distributed.

Antimony tri-oxide is used in conjunction with lead. Training is given when the lead standard is reviewed annually (see L-8, L-11). For 1981, the following Sb results were found (ug/m3) - 14.66, 42.00, 94.02, 117.17, 17.14, 21.97. Sampling results for 5/82 were 407.98, 65.44, 76.69, 29.19, 31.88. Results for 4/82 were 24.54 and 142.31.

Annual audiograms are given all employees by the plant nurse. She uses the Maico Hearing Audiometer Model MA12B serial #11513. The instrument was calibrated 11/10/81 by Instrumentation Association, Naper Darby, PA. Employees are instructed on the effects of noise at this time. Silent a muffs, AO muffs model 17201, Bilson sound sentry muffs and E.A.R.S. are available to employees who work in areas that exceed (85) dBa. The only high noise area in the plant (i.e., where SLM measurements exceed 85 dBa for routine operations) is the compounding area. However, it is doubtful that a TWA of greater than 85 would be obtained. The nurse stated no threshold shifts were noted in any of the audiograms she gave. Hearing protections are required in the following areas: pearl/paste, dryer building, mass resin, compound latex, tire pump house, boilerhouse.

C. Workplace Observations

Building 541 is the compound area. Resin plasticizers and stabilizers are pumped in through a closed system to a mixer and milling operation where end product is small PVC cubes which are sold in boxes. A diagram of the system is found in L-4468-049, p. 460. The only employee chemical contact is in the weighing room. Lead and antimony are the primary additives. Lead is added via a pallet system which is a closed system - each pallet weighs _____. The lead is automatically weighed and dropped into the mixer. _____ said a pallet system would be used for antimony, hence eliminating the need to hand-weigh it in batch. Cab-o-sil (amorphous silica) and carbon black are added to batch (in 25 and 50 lb. weights). Each batch takes 4-5 minutes to run. Up to _____ batches can be run in one day.

_____, the weigh room operator, uses an MSA half-face respirator, Raco Helmet, when using lead. When dumping Cab-o-sil or carbon black, an 87 toxic dust mask (3M) is used. The air line system is spring coiled allowing the operator mobility when mixing Pb or Sb. The interviewed employee was wearing a toxic dust mask, disposable white suit, head covering and safety glasses when dumping Cab-o-sil. Ventilation at employee breathing zone was 150 ft./min. He was knowledgeable about the hazard of Pb and Sb, had yearly training, had blood tests bi-monthly (sic), and performs dumping of product in a fashion minimizing exposure (i.e., carefully adjacent to ventilation). Safety meetings, when procedures are reviewed, is monthly on the 4-12 shift. The employee stated the pallet system works most of the time, but sometimes hand-weighing is necessary. Respirators are stored in separate lockers shower and change facilities with separate lockers are provided for mixing room employees. A clothes vacuum cleaner is found at the entrance of the locker room.

After the product is mixed, _____ the product is milled and based. The compound room/cubing room is a high noise area - 95-102 dBa. The activity in this room is monitored by an operator viewing the operation on a TV screen outside the cubing room. The noise level at this control panel even is 82-86 dBa. The operator enters the cubing room approximately 1/2 - 1 hour/day when machine malfunction necessitates. Hearing protection is worn whenever the employee enters the area (i.e., even outside cubing room). Signs warning of the noise hazard are posted on the compound room door. A full noise survey of the area was conducted by BFGoodrich (see correspondence side of L4468-049) to determine compliance with a noise citation issued 3/17/78. I noted during the walkaround that employees in the packaging area wear hearing protection, even though the noise level is between 80-85 dBa, and at no time during normal operations is likely to exceed 85 dBa. The remainder of the compound area is used for storage of raw material and finished product.

A walk-through of Buildings 545, 546 and 547 (change house, administrative and distribution center) revealed no safety and health hazards.

The new poly area for PVC manufacturing encompasses Buildings 532, 533, 536, 535, 534, 531, and 505. This area was completed 1/82 and is a new processing operation. Building 532 is the control building; old operations for the poly unit are executed from this building. The entire process is computer controlled, including turning valves and activating ventilation systems. A closed system, a lead technician and one technician operate the entire system from the control panel. A third technician goes through the plant. The entire shift is radioed if a problem exists. Engineers and computer technologists service and write programs for the computers. Mechanics and maintenance personnel perform mechanical repairs, when necessary. Vinyl chloride is received from

_____ railroad cars, pumped in to the VC1 sphere and is processed via a filtering system into reactors (Building 531). _____ to the VC in Building 533. Building 534 _____ removes residual VC from the product so it won't release to the atmosphere. The stripping operation is performed so EPA standards can be met. Building 535 _____ removes all unreacted VC monomer. Building 505 is a _____ (using ammonia in cooling coil) to keep VC at desired temperatures. The utility Building 536 contains H₂O pumps and compressor pumps.

Building 533 _____ is where chemicals are added to reactor. _____ is added to holding tanks which are charged to the reactor. A maximum of four hours/shift is spent dumping hazards - 2-3 times/week. _____ is added in the shortstop. The employee wears a pressurized Vortex suit with full-face air line respirator. After the _____ is added, the employee takes a shower with the suit on and then a shower with the suit off. Shower facilities are located 10' from the shortstop. _____ is added 45-1 hour/shift. Organic peroxide is added every five days. The employee wears a rain suit, face shields.

Building 503 is _____ located approximately 100' from the poly unit. Here are stored refrigerated gallons of _____. Approximately 192 gallons are stored.

Building 531 is _____. This is the area of the four vinyl chloride reactors. This is a completely closed system. No employees were in this area during the walkaround. I noted the locations of the sampling port and air line stations. This area considered a noise area requires the use of hearing protectors.

Building 535 is the _____. A closed system four sampling ports were determined. Non-reacted VCM is recovered in this operation.

Building 534 _____ has two sample ports - a closed system. Exposure limited to emergencies.

Building 538 is _____ where VCM charge pumps are located. This is an outside area - a completely closed system.

The older process (VC) is performed in Buildings 512, 513, 514 and 515. A general map of the area and process description is found on p. 423, 424, 425 of L-4468-049, process description P517. The monitoring system is described on page 4 of this report. I reviewed with _____, a technician about his responsibilities working in the poly area. I specifically reviewed with him vessel entry procedures. This employee stated that there are _____ running reactors that must be entered for cleaning and general maintenance. The average time spent in a vessel is _____

10-20 minutes, although excursions up to 45 minutes may occur. Before entering a vessel, the poly entry form must be filled out. Lines and hammer points must be blanked. Each vessel must have a minimum O₂ of 21% (as per oxygen analysis). The VC is checked with the HNu (entry is permitted to a maximum of 200 ppm - above 200 ppm special permission from the lead technician must be obtained). The tanks are cleaned with high pressure H₂O - 5K lbs. of H₂O pressure. Full-face air line respirators, gloves, and hard hat-eye protection are used when a half-face air line respirator is used. A standby is used whenever vessel entry is performed. The vessel entry checklist is reviewed by a lead technician before the employee enters a vessel. Once/month, mock rescue drills are performed simulating getting a hurt employee out of a vessel.

Building 515 _____. Product is fed to this building from Building 512. In Building 515, a direct fire dryer is used removing H₂O from the system. The final product obtained is: Geon vinyl dried PVC. Bagging resin is done in this building. The bagging is done mostly automatically. The bagger wears a dust mask and disposable suit when bagging with exhaust ventilation in place. No bagging was performed during the walkaround. _____ said quarterly monitoring for VC was performed in this building. Final product is manufactured either by the suspension or dispersion method. Each process is a combination of screening, grinding and heating, which results in final product of different particle sizes.

Building 521 _____. This area provides the compressed air and demineralized H₂O for the entire plant. The plant utilizes an Eliot air compressor. It is equipped with a low pressure air alarm which is activated at 95 lb. of pressure. An employee is located at control room panels for the entire shift (for all shifts). There are two backup air compressor systems; one electric and one steam operated. Whenever a drop in pressure is found, the engineer in the control room calls the affected area of the plant notifying them of the drop.

Building 512 _____ has _____ autoclaves, and one sampling port on VC for each point. A closed system, routine exposure to VCM is not likely. Those jobs where exposure may occur are listed on P-7.

Building 513 is _____ unit is a closed system. Employee contact with VCM monomer is limited to the procedures outlined in P-7.

Building 539 _____. No safety and health hazards were noted in this area.

Building 524 _____. There are approximately six employees in this area. Primary equipment are saws, lathes, drill presses - all appropriately guarded. There are two sandblast machines, both enclosed; neither were being operating during the inspection.

Building 523 is _____. No safety and health problems were noted in the walkthrough, nor did employees mention any problems during interviews.

Building 502 _____. The process involves acrylonitrile and water and emulsifiers to achieve a latex in a series of reactors. There are 3-4 employees in this area on each of the four shifts; a lead technician, charging technician, and a filtering technician. Acrylonitrile is treated in the reactor tanks, the charge is then dropped into the blow-down tanks where it is further reacted to form a latex-like product. Acrylonitrile signs are located in the area stating "danger acrylonitrile (AN) cancer hazard - authorized persons only, respirators required". Added to the reactor tanks in various quantities are:

_____. There are _____ reactor tanks, _____ blow-down tanks (blend tanks for certain products). The employee in this area wears rubber gloves and face shield for mixing product. Whenever opening a tank, an air supply respirator is used. An interviewed employee stated he received yearly training and a physical for acrylonitrile. The reactor is cleaned once every _____ charges - _____. The reactor is cleaned after each charge with a nozzle spray solution (an alkaline _____ solution). The reactors are _____ mixers. The interviewed employees in this area were fully knowledgeable of tank entry procedures and stated procedures used to clean and maintain the respirators.

A walkthrough of the entire plant revealed no safety and health problems. No citations are being issued.

D. Occupational Health Program

Monitoring/Medical Program/Educational & Training Program
Recordkeeping/Compliance Program/Hygiene Facilities/Labeling and Posting
- all items addressed in opening conference p. 1-8.

E. Closing Conference

A preliminary standard closing conference was held at the end of each inspection day with _____. A final closing conference was held on 7/27/82 with _____. I told him no safety and health violations were noted during the walkaround nor during the review of medical programs or monitoring results.

/1453g
11/4/82

NGC 14436

cc: R. Kelley

T. Braike

T. Montalbano Inter-Organization Correspondence

9/1/82 d. l.

BFGoodrich

Chemical Division

BEG RESTRICTED

To	From
Doug Frey	Chuck McCann
Location	Location
Department	Department
Subject OSHA - INDUSTRIAL HYGIENE INSPECTIONS - JULY 1982	
Date 8/17/82	

On 7/8/82 an OSHA inspector came to the plant. He was told by Edie Munyan that the plant was shutdown. On 7/14/82 he returned.

OPENING CONFERENCE

Paul D. Inglesby - OSHA Industrial Hygienist
Jim A. Kiel
John M. Fletcher
John J. Krementz

After appropriate identification was verified, Mr. Inglesby indicated that he would like to perform an industrial hygiene inspection of our facility. Our facility with a SIC code of 2821 has been identified for a routine inspection of our hazardous material handling practices.

The inspection would consist of

- Procedure review
- Training practices
- Typical personnel monitoring results
- Inspection of facilities
- Employee interviews
- Sampling
- Review of 1981 and 1982 YTD OSHA 200 log

Mr. Inglesby requested that we initiate the inspection on 7/14/82.

Herm Waltemate was contacted prior to and subsequent to the opening conference with respect to the OSHA inspector requirements.

A second conference was held with: Paul D. Inglesby
Jim A. Kiel
Chuck E. McCann
Greg A. Kaswell

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The purpose of the inspection was reviewed and a format to accomplish it was developed. The specific review was as follows:

- Review 1981 and 1982 YTD OSHA 200 log - questions on the N₂ inhalation incident and burn incidents were fielded. GAK/c
- Review general procedural format, ie. Plant SA and department JAK
- Reviewed plant and departmental training program JAK
 - . SA procedures
 - . Departmental procedure
 - . Industrial hygiene annual training
 - . Personnel monitoring results and counseling if required
 - . Facility manager environmental c

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- Compound

CEM

- . Review Compound Lead Handling SA-25
- . Review plant respirator protection SA-30
- . Review Compound departmental training program. A copy was requested
- . Review typical personnel monitoring records
 - 1981 Lead and Antimony
 - 1980, 1981 Lead, Antimony and Noise

- Noise

- . Review plant noise program - SA-23 CEM/GAK

- Latex

- . Review of company acrylonitrile training program CEM
- . Review typical personnel monitoring records
 - 1981 Acrylonitrile
 - 1981 Acrylonitrile

- PVC

CEM

- . Review Vinyl Chloride Procedure SA-31
 - . Review of Company VCM Training Program
 - . Review typical personnel monitoring records
 - 1981 VCM
 - 1981 VCM
 - 1981 VCM
 - 1981 VCM
 - 1981 VCM
- First quarter 1982 Large Poly results (letter CEM-HW dated 4/16/82)

- GENERAL

JAK/CEM/GAK

- . New employee training GAK
- . New chemical review - SA-35 JAK
- . Emergency response-spills CEM
- . Fire brigade and Tri State Mutual Aid GAK
- . Emergency procedures - SA-32 JAK

- MEDICAL

- . Review typical medical file Jane Jacks
 - VCM
 - Compound
 - . Mr. Inglesby requested a copy of BFG form #13613A (Medical tests) and a copy of blood lab tests performed for VCM exam.
- Mr. Inglesby took personal notes throughout the entire review

NGC 14438

The next inspection was scheduled for Thursday, July 22, 1982.

July 22, 1982

BFG RESTRICTED

Mr. Inglesby met with Con Nosal, Chuck McCann and Greg Kaswell prior to initiating plant inspection.

Compounding

The area was not running since Thursday is Maintenance day. Chuck McCann explained operation of air pallet system. He noted the use of Carbon Black and Cabosil fumed silica.

Inspected weighbooth area and related ventilation. He expressed a request to take a photograph of the weighbooth as his velometer was not working properly. I stated that we could work out taking a photograph and stated that I had some velometer data that I could show him. We reviewed letter from C. McCann to John Goetsch dated 11/26/79 regarding air flowrates at the weighbooth. He was satisfied with this and made no further request to take a photograph. His stated purpose in pursuing the weighbooth item was to document what an excellent program we had.

Respirator storage - Inspected respirator storage area and noted airline hookup to airstream respirator - did not inspect lunchroom (cleanliness of lunchroom had lead to citation in 1977).

Inspected mill and cuber area - noted earmuff model number of muffs hanging on wall outside cuber. Walked through cuber area and I explained engineering controls used abate citation (TV, mirrors, sound panels, speed control from outside cuber room). He asked to see the data we used to abate the noise citation. Reviewed letters from C. McCann to Herm Waltemate dated 2/4/80 and 3/4/80 related to Noise monitoring of January and February 1980. He asked for copies of these letters and I stated that I believed OSHA already had this information. He said he would check his office. (He later checked and confirmed that he had what he needed at his office).

LARGE POLY

While walking to Large Poly, Mr. Inglesby asked how our VCM building monitoring systems were calibrated. I stated that there was a daily span check in addition to routine preventative maintenance performed. He related incidents at other facilities where air sampling piping had rusted through, somehow causing a nuisance alarm which was ignored and asked what we did to insure that the system checked out all the way out the pickup points. After conferring with an instrument technician at Large Poly, I responded that on a non-routine basis, as part of troubleshooting, the gas flow from the sample point to the GC would be checked with bubble tube or flow meter.

Tim Manning, Large Poly engineer, assigned to environmental and industrial hygiene responsibilities described process and building monitoring system. While reviewing recent building monitoring data (Inglesby noting ranges and averages (for 7/16)), gas alarm sounded for Mass resin.

Chuck McCann and Paul Inglesby left Large Poly and headed North on road toward the maintenance shop. Inglesby asked what sort of thing would initiate a gas alarm and whether it was an automatic or manually activated alarm, my response was that the gas alarm was sounded manually by either a console tech or a building person, whenever there was an uncontrolled release of vinyl chloride, or a release, which was under control but might affect operations outside the immediate building.

NGC 14439

While we were walking, I noted the position of the gas alarm indicator lights on each building and how everyone was following the gas alarm procedure by heading upwind of the Mass resin building. The all clear sounded and we returned to the Large Poly area and began reviewing building monitoring data gain.

Tim Manning explained the use of the computer at Large Poly and after I checked the G.C. alarm panel for absences of high VCM readings, Paul Inglesby, Tim Manning and I began to enter the Large Poly process building to tour. At this point, Bill Risley, Lead Technician, asked us to leave as there was a vinyl leak. We walked back into the office and further reviewed building monitoring data. (The leak that Risley was referring to was when we blew the rupture disc on the charge line).

LATEX

Toured Latex building, starting with fourth floor and working down. I explained process of making latex and Paul Inglesby interviewed Ben Sheriff, charging technician. The following information was discussed during the interview (responses in parentheses)

- Name, address and phone number.
- Is he aware of the hazards associated with acrylonitrile? What are they? (Cancer, central nervous system disorders)
- What type of respirator does he use? (Cartridge-change out once a week)
- What type of protection is worn during acrylic acid handling? (Rubber gloves, R-55 respirator, faceshield)
- Fit check for respirator (Ben describes negative pressure and irritant smoke test)
- Have you used powered air purifier (No)
- Training on Scott air pack - frequency (drill once/quarter)
- Exposure points for hazardous material - (rinsing out poly and charging drummed monomer)
- Demonstration of task wearing respirator - (nothing going on right now to show)

Walked out to fourth floor area - inspected Poly 1 - reactor cleaning system nozzle

- Asked what type of reactor it was (Ron Szmerda, Area Manager replied Pfauldler)
- Checked location and operation of eyewash
- Checked use of caustic and location of personal protective equipment for handling
- Noted use of Methacrylic acid. (Ron stated that we use approximately 30 raw materials in latex process)

Ron and Chuck conducted tour of remainder of building.

Paul Inglesby particularly impressed by spot ventilation on second floor.

Explained ductwork and EA destruction system.

DISPENSARY

Reviewed several checklists for OSHA required medical surveillance for VCM, PB and AN. Reviewed with Jane Jackson.

Supplied him with blank VCM blood worksheet and Master Medical Examination (BFG form). Supplied him with "Working with Lead Compounds and Other Toxic Materials in the Compo Area" BFG training material (all pages stamped Confidential).

Page 5:

BEG RESTRICTED

TANK FARM

Interview

- Name, address and phone
- Aware of hazards of VCM? (Yes)
- Training and medical surveillance (Joe details)
- What mechanisms do we have to detect VCM?
(Joe outlines LEL/THA system)

Reviewed location of airline connections

- How often are airline filters changed?

SUSPENSION LARGE POLY

Reviewed GC records again

7/13, 7/16

Inspected Suspension Large Poly area with

Console technician

Inglesby took instantaneous sound level meter readings in the building - results ranged from 82-87 dBA in first floor of Building 531, below 85 dBA all throughout remainder of Building 531 as well as slurry building. Recovery build readings 87 dBA.

DISPERSION

Reviewed dispersion area with

Process description and location of building monitoring points. Sound level measurements in building ranged 82-85 dBA.

Inglesby requested copy of building vinyl excursion checksheet (BFG form 16807). After Steve and I reviewed it for potentially sensitive or confidential information, we supplied him with a blank copy.

Reviewed computer printout of Building 513 building monitoring monitoring system dates of 7/13, 7/16, 7/20 and 7/22, noted averages and ranges.

Requested copy of typical day printout.

Supplied him with a copy of page 002061, 7/13/82 2300 printout.

MASS

Reviewed mass resin with as well as use of process computer to control dispersion and mass resin production.

Tour through process - Inglesby reviewed visible section of strip chart of GC

Reviewed plot plan of plant (supplied him with copy)

Follow up visit scheduled for 7/27/82 to cover Ammonia, Pigment Building, PLP utilities, Dryer, Construction Warehouse, Lab, Boiler and Compound in operation.

Held short closing session with Con Nosal where Paul Inglesby related his very positive findings.

NGC 14441

REDACTED

BFG RESTRICTED

Page 6:

Phone Call of 7/26/82

Paul Inglesby called to confirm his scheduled visit of 7/27/82 and noted that he would like the following information.

Recent air sampling personnel monitoring information for lead and antimony - since air pallet startup.

Recent acrylonitrile sampling results

Recent vinyl chloride results in all three process areas

Questions regarding notification to OSHA of startup of Suspension Large Poly (I replied that the Company's position was that the Large Poly area is not a regulated area and that personnel monitoring has confirmed this position).

He would like to witness a poly entry or interview someone who routinely performs this task

Is an x-ray provided for acrylonitrile medical surveillance?

Is there a CO alarm on breathing air, do we have an oil lubricated compressor for breathing air?

Do we check self contained breathing apparatus for air content and alarm operation on routine basis?

Stated that he would like a copy of the vinyl chloride and acrylonitrile programs as was given to Frank Lewis of OSHA during his 7/19/77-12/29/77 OSHA Industrial Hygiene Inspection.

July 27, 1982

Paul Inglesby arrived at 0900 and we proceeded directly to the Compound operation. Toured compound with John Goetsch.

Third floor mixing area

Interviewed Joseph Schools -

Name, Address and Phone #

Asked about job rotation, training, medical surveillance

Do we ever hand mix lead? (Only when we run out of air pallet material or system is down for maintenance-rarely)

Knowledge of hazards of lead and Di n-octyl Phthalate

Took velometer reading at dumpchute

His only response was "great"

Readings were 150 ft/min. at breathing zone, 300-500 fpm at dumpchute

Compound First Floor

Sound level readings taken

Farrell discharge 82

Mill TV area 82 (even with breeze)

Packaging 85

NGC 14442

REDACTED

BFG RESTRICTED

Compound first floor (cont.)

Interviewed - Compound Technician

- . Name, address and Phone #
- . Audiogram - does he get tested? (Yes)
- . Use of hearing protection (all the time in Cuber)
- . Does he spend most of his time outside Cuber room? (Yes)

Interviewed - Allied Packaging man

- . Name, address and phone #
- . Use of hearing protection
- . Training provided
- . Asked if he was related to who lodged OSHA complaint against Dupont? (answered Yes)

Suspension Large Poly

Ammonia Building 505 - Alarm levels 50 ppm

Is there anyone out in this building on routine basis? (No)

Lance Mayer, Process Engineer-took us through Pigment Building 532. Noted: ATSC handling equipment including vortex suit and local shower-verbally reviewed ATSC handling procedure

Walked through inspection of several buildings

Construction Warehouse

High Pressure Pumphouse

Catalyst Bldg.-noted capacities of freezer

Maintenance Shop-noted welding fume exhaust

Laboratory-noted personnel monitoring equipment

Drier

Boiler-interviewed -Allied Boiler Operator

- . Took name, address and Phone #
- . Keyed in on operation of plant breathing air system, Bernie reminded Inglesby to wear his hearing protection outside booth.

Interviewed - BFG Utility Tech Dispersion

- . Name, address, Phone #
- . How long does a vessel entry usually take?
 - Anywhere from 10-45 min, average 10 min.
- . How do you check for O₂? (check with O₂ meter-must be 21%)
- . Do you check for anything else - (Check for vinyl chloride using HNU greater than 200 ppm requires extra precautions, usually level less than 5 ppm.

NGC 14443

Dispensary

Checked audiometric equipment, and audiogram forms.

Asked Jane Jackson about her certification to perform audiometric exam (she stated that she has had it since 1970)

Jane confirmed that x-rays were part of routine AN medical surveillance

Answered remainder of Mr. Inglesby's questions

Reviewed raw data for personnel monitoring for VCl, AN, Pb and Sb for April, May and June

There is no CO alarm required for breathing air as the compressor is not oil lubricated

Scott air paks checked for air content and alarm operation on routine basis

Airline filters changed on semi-annual basis

Closing Conference - 7/27/82

Joe Smith - Purchasing Manager (Acting Facility Manager)

Chuck McCann - BFG Environmental Engineer

Paul Inglesby - OSHA Industrial Hygiene Inspector

Paul reviewed reason for inspection - SIC number placed BFG facility into "high hazard" category. The Pedricktown facility had not undergone an in-depth industrial hygiene inspection such as this since 1977.

Paul noted that in the four years he had been an inspector with OSHA, he had never, until now, done a full fledged industrial hygiene inspection at a large facility without finding something that needed improving. The BFG Pedricktown facility was fully satisfactory. There were no safety or health hazards apparent. Employee interviews were all very positive and indicated a high level of awareness of hazards of materials as well as a high level of awareness of proper procedures and personal protective equipment. He noted the extensive checks and double checks built into our programs dealing with health and safety.

He characterized Pedricktown as a truly exemplary facility and noted the extremely cooperative nature of all persons he dealt with.

Chuck McCann

Chuck McCann

CEM/re

cc: J.A. Kiel/G.A. Kaswell/C.W. Battle

H. Waltemate/T.S. Bialke/T. Montalbano - Cleveland

J. Lewis - Cleveland