GOODRICH INTER-ORGANIZATION CORRESPONDENCE

R.J. Grahek **Henry**

T.S. Bialke Akron - D/0020, 5-H 5-30-84

Industrial Hygiene Survey

During the period April 23-26, 1984, an industrial hygiene survey was conducted at the Henry plant. The plant has done a good job of implementing hearing conservation and respiratory protection programs. All previous survey recommendations have been completed.

Out of 82 industrial hygiene audit items, the Henry plant was found to have 75 satisfactory; seven items need attention. Recommendations are contained herein to review employee VCM monitoring data with consideration to reducing VCM physical examinations, to eliminate audiometric testing of polymer chemicals employees, and to reducing monitoring even further for acetonitrile, benzene and polymer chemicals dust. Recommendations are also offered to improve ventilation of resin reclaim press dryer, ventilate metal spray operations, and conduct semi-annual flow check of the compound weigh booth.

I want to thank K. Willings and D. Friesz for their help during the survey. My thanks also to J. Griffin, M. Guyer and R. Grahek for their enthusiastic support of the plant's industrial hygiene program.

T S Bialke

T. S. Bialke

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cc: M.Guyer/K.Willings/D.Friesz
G.Lefebvre/H.Waltemate
N.Aquino/F.Krause/J.Hobey
J.Stroope/K.Lee
E.B.Katzenmeyer/H.W.Dietz,MD/0020 Staff
R.A.Guyton,MD/R.A.Kelley

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Compliance with Previous Survey Recommendations:

81-1. Respirator cleaning and storage has been improved; action complete.

81-2. Job health hazards have been inventoried; action complete.

82-1. Personnel monitoring for VCM dropped to OSHA standard requirements. Benzene and acetronitrile monitoring has been reduced. Routine monitoring for toluene and hydrogen sulfide has been discontinued. Action complete.

82-2. Respirable dust sampling requirement of 1.7 Lpm is being met. Invalid data has been deleted from monitoring records. Repeat monitoring has been initiated. Action complete.

82-3. All noise hazardous areas are posted; action complete.

82-4. Draeger monitoring pumps are being properly maintained; action complete.

82-5. Urinalysis of employees for phenol who receive brief, high exposure to benzene has been discontinued; action complete.

82-6. All employees whose job requires them to wear a respirator are offered a respirator examination; action complete.

82-7. Monthly environmental health report has been discontinued; see current findings.

82-8. Formal replies to 1982 industrial hygiene survey were timely and complete; action complete.

Industrial Hygiene Survey Recommendations: 1984

84-1. Arrange for the Henry plant's industrial hygiene coordinator to attend a course in inustrial hygiene. NIOSH, Natalsco and others offer such courses. Contact T.S. Bialke in Akron (ext. 4224) for details.

84-2. Issue a quarterly industrial hygiene report containing, as a minimum, the following: summary of personnel monitoring results, explanation of overexposures, personal protective devices worn and corrective actions taken to prevent further occurrences of overexposures. I am forwarding examples of report formats to K. Willings.

84-3. Review past two years of VCM personnel monitoring data and compare the results with the VCM physical exam requirements contained in BFG OHP 5.02. The Environmental Health Department in Akron must be informed of deviations from these requirements.

84-4. Discontinue audiometric exams for polymer chemical employees as noise exposures are not above 50%.

84-5. Ensure that the plant physician is noting in employees' medical record that the employee has been medically approved to wear a respirator. If there are any restrictions, these also must be recorded in the employees' medical records.

IH Survey Recommendations: 1984 (con't)

84-6. Update MSDS book that is kept in the PVC compound office to ensure that all MSDS are available for all chemicals used in the compound operation.

84-7. Indicate on recipe card used by weighman which compound codes are toxic and need special handling.

84-8. Sample for asbestos by conducting personal monitoring on Henry plant employees each time they remove asbestos-containing insulation. See Section 9 of BFG OHP manual for procedure.

84-9. Reduce benzene personnel monitoring to once per month per exposed job class when running X70/Geltrol process.

84-10. Reduce acetonitrile monitoring to once per year per exposed employee.

84-11. Reduce polymer chemical dust monitoring to twice per year per exposed employee.

84-12. Obtain personnel samples for toxic dusts during weighing and Henschel loading in compound. Compounds to sample for are chromates, nickel and cadmium. Sample three times per exposed employee. See BFG OHP, Section 9 for procedure.

84-13. Conduct personnel monitoring for nickel and hexavalent chrome during metal spraying operation being conducted in maintenance shop. Obtain three samples per exposed employee. See BFG OHP, Section 9 for procedure.

84-14. Require that employees conducting metal spraying operation wear a high efficiency particulate respirator until lathe is ventilated and monitoring does not show the existence of a problem. I am forwarding to D. Friesz a copy of the American Welding Society "Recommended Safe Practices for Thermal Spraying".

84-15. Conduct semi-annual ventilation flow checks and/or maintenance on compound weigh booth. Ventilation rates may need to be improved if personal monitoring recommended (see 84-12) indicates that significant exposures exist.

84-16. Modify plans to ventilate resin reclaim press dryer by providing for draft curtains on top and sides from the wall to the back side of the press. Such a "modified enclosure" would ensure that air exhausted from the press dryer area would be drawn through the press and out of the building.

84-17. Until resin reclaim press is ventilated, reduce bagger's exposure through use of respirators or improved work practices.

84-18. Require that employees engaged in blend tank cleaning wear an airline respirator (Sample #3, Appendix I).

Industrial Hygiene Audit Checklist

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

Overall, the Henry IH program is satisfactory with 75 satisfactory areas (including the 24 satisfactory items from the hearing conservation checklist) and seven areas that need attention. In the first part of this report I detailed my recommendations to address these seven areas. In the following discussion I will elaborate on the recommendations that are not self-explanatory.

Discussion:

The administration of the Henry plant's IH program is functioning smopthly, but needs enhancement. The plant IH coordinator has developed skills through work experience, but has not attended a training course in industrial hygiene. There is a vast amount of fundamental knowledge of toxicology, engineering, ergonomics and chemistry which the science of industrial hygiene requires of the practitioner that can only be obtained through formal training. Courses are offered by NIOSH, Natalsco and others in IH fundamentals and sampling procedures.

The monthly environmental report issued by Henry plant was eliminated in December 1983. With the elimination of this report, the plant has no mechanism for informing Chemical Group management or Environmental Health Department of employee exposure problems or control successes. A periodic report of industrial hygiene efforts is a valuable tool for getting the attention of upper management and keeping them attuned to Henry's unique industrial hygiene problems.

The Henry plant industrial hygiene coordinators do an excellent job of issuing a year-end summary of plant IH activities. The coordinators have also been very diligent in establishing goals for the following year.

One item identified under OVA as a possible cost savings was to eliminate the physical exams of employees that the plant is not required by law or BFG policy to examine. To help Henry achieve that goal, the plant nurse, along with the IH coordinator, must review the past two years of VCM personnel monitoring data and determine the jobs that expose workers to VCM above 0.5 ppm, the ~~OSHA~~ cut-off for the vinyl chloride physical exam requirement. People working on these jobs must, by law, be provided examinations. BFG OHP 5.02 also requires that employees who were exposed in the past (prior to 1967) on a routine basis to VCM above 0.5 ppm be provided a VCM physical exam regardless of their current VCM exposure.

The Henry plant has identified all asbestos sources and implemented a removal and disposal procedure. Monitoring for personnel exposure to asbestos during insulation removal was conducted four years ago. As a result of the mounting concern with asbestos exposure, it is in the best interests of the plant to document employee exposures to asbestos fibers each time asbestos is handled.

Henry has reduced the number of personnel monitoring samples collected for benzene, VCM, acetonitrile, PVC dust and polymer chemical dusts. Further reductions are still possible. I have made recommendations to reduce monitoring frequency for some substances. Reductions are possible that will save time and money, but still ensure that employee health is being protected.

Discussion (con't)

Thermal spraying or spray metalizing is conducted on an unventilated lathe in the machine shop. Depending on the type of metal being sprayed, workers can be exposed to the fumes of nickel, chromium, tin and zinc. Personnel monitoring on workers involved with spray metalizing on an unventilated lathe at the now closed Independence technical center showed exposures to nickel to be above the allowable limit of 1.0 mg/M^3. Both nickel and chrome compounds are carcinogenic.

As a result of personnel monitoring conducted by the plant, the resin reclaim bagger has been shown to be overexposed to VCM. I collected two personnel monitoring samples on the resin reclaim bagger during this survey; one was above 1.0 ppm, the other below 0.5 ppm (Appendix I, sample numbers 1 and 2). The VCM source causing the reclaim bagger's overexposure is thought to be the resin reclaim press on the second floor. Plans to ventilate the press, with modifications, should reduce the bagger's VCM exposure. Until engineering controls are implemented and monitoring shows that exposures are below 1 ppm, the resin reclaim bagger's exposure must be reduced through use of respirators and work practice/administrative controls (OSHA VCM standard 1910.1017 (f) & (g).

Samples 3 and 4 in Appendix I were collected on the poly cleaner job class in the PVC building. Both sample results were in excess of the standard. An airline respirator was worn by one employee (#4) during cleaning of two polymerization reactors. The other sample (#3), the employee indicated he did not wear a respirator during cleaning of a blend tank. Respirator usage must be reviewed.

The PVC bagger's result of 0.98 mg/M^3 (#5, Appendix I) is low and demonstrates adequate control of PVC dust exposures.

Samples collected in the polymer chemicals bagging area have not yet been analyzed. As soon as I receive the results I will forward them to you.

Feedback:

The following comments were made during the feedback session:

1. We need BFG employee exposure standards for OBTS, MBTS, Superflex and Vanlube.

2. BFG needs an expert ventilation and noise control engineer.

TSB

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APPENDIX I.

PERSONNEL MONITORING RESULTS
Henry - April 1984

No.	Date	Name/SS#	Job	Sampling Time (min)	Respirator	VCM (ppm)*
1.	4/24	[redacted]	Helper, bagging reclaimed resin	422	No	1.5
2.	4/25	"	"	430	No	0.4
3.	4/24	[redacted]	poly cleaner (cleaned blend tank)	385	No	5.1
4.	4/25	[redacted]	poly cleaner (cleaned 2 polys)	465	airline half-mask	2.3

No.	Date	Name/SS#	Job	Sampling Time (min)	Respirator	Total Dust** (mg/M^3)
5.	4/25	[redacted]	PVC bagger	387	No	0.98
6.	4/24	[redacted]	Compound operator	445	No	4.93

*VCM samples collected on standard size charcoal tubes with MSA C210 pumps operating at 22-24 cc/minute followed by G.C. analysis by Brecksville Environmental Laboratory.

** Total dust samples collected on 5.0 μ PVC 35 mm filters using duPont P-2500 pumps operating at 1.5 Lpm with gravimetric analysis.

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