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Interoffice Communication

To Distribution

From D. A. Kuhn

Date February 27, 1976

Subject Chemical Exposure Abatement Symposium - December 10, 1975

A one-day symposium was held with representatives from each plant to review the status of the subject program and determine if any mid-course corrections were needed. Attendees were as follows:

Aberdeen - Jerry Uptain, Frank Scott
Baltimore - Frank Willson, Kyle Resh
Hammond - Andy Appel, Earl McCants
Lake Charles Chemical - Jack Cearley, Ben Decker, Dale Palmer
Lake Charles VCM - Paul Fetzer, Earl Gremillion
Newark - Hank Pitera, George Haberman
Oklahoma City - Bill Henry
Refining - Roy Barresi

The meeting began with brief oral reports about the status of the program at each plant.

ABERDEEN

Jerry Uptain indicated vinyl chloride was their biggest exposure concern. Currently they are monitoring with dosimetry each person for eight hours once a month. The sample is collected in a gas bag. In addition, they have a Honeywell fixed point monitoring system set to register in the 0 - 10 ppm range equipped with a high-level alarm. They believe they can use this system as a positive method to check for leaks and correct them. This, of course, will be required in the proposed EPA vinyl chloride standard. Currently they are sampling for lead-containing materials with a Bendix air pump in "high lead" areas. Samples are sent to analytical R & D in Ponca City for analysis. Results to date indicate there may be problems with high-lead levels if proper work practices and housekeeping are not maintained. Trichloroethylene was mentioned as a solvent for which they have concern even though it is not a large-volume chemical in the plant. A written exposure abatement plan for the future was scheduled for their plant management the following week. It was to include identification of hazards, exposure measurement by grab sample or indicator tube, dosimetry where necessary and ongoing spot checks to assure that exposure stays low.

Their analytical laboratory is proceeding gradually to assimilate the required new techniques. They are trying to concentrate on instrumentation to minimize any increase in laboratory personnel.

BALTIMORE

Frank Willson continued to indicate that benzene is assessed as their biggest problem. He discussed the history of benzene exposure at the plant and how they handled sampling and medical surveillance in the past. They started with grab sample determination of benzene, toluene, xylene, asbestos, mercury (in instruments and the laboratory), silica and caustic soda. Area sampling for benzene was begun in the first part of 1975; engineering solutions to emissions were proposed and are being implemented. By mid-1975 personnel dosimetry was being performed with a method that measured benzene, toluene and xylene. Selected positions were monitored for eight-hour periods once per month. There is a program to monitor for hydrogen chloride and chlorine as well.

HAMMOND

Emission exposure of Hammond raw materials and products was assessed to be low based on a study of their vapor pressures. Tests were conducted for ethanol, sodium hypochlorite and sulfur dioxide with little or no exposure found. The plant concentrated, therefore, on sulfur trioxide (sulfuric acid) and ammonia. The sulfur trioxide measurement proved to be elusive, and they found great analytical difficulties, finally resorting to an outside consultant for help. Ammonia measurements during ammonia deliveries found unacceptably high exposures unless carefully made. Modification of the delivery procedure has already occurred, and they will monitor this activity to assure that emissions are acceptably low. They plan to repeat their exposure determinations with indicator tubes every six months where no unacceptably high exposures have been found. With ammonia they will repeat every three months. They intend to assure that their sampling program will conform with the OSHA sampling design.

LAKE CHARLES CHEMICAL

Jack Cearley reports that the toxic chemicals of greatest concern to this plant are phosgene, hydrogen chloride, methyl chloride, ethylene oxide, benzene and vinyl chloride (either airborne from the VC plant or as a component of hydrogen chloride delivered from the VC plant). They began their program with indicator tubes and then switched to personnel dosimetry as their sophistication improved. The dosimetry results indicate their maintenance staff has the greatest potential for overexposure, and they are tussling with ways to control that. Action to eliminate overexposure has just begun. They have written plans about how it will be accomplished. For the future they plan to monitor all shifts and determine how to take special care of the maintenance staff. Special attention will be paid to exposure at the methyl chloride plant.

LAKE CHARLES VINYL CHLORIDE

Gremillion and Fetzer reported on the vinyl chloride plant's efforts. They indicated the vinyl chloride determination that they use in their dosimetry permits measurement of ethylene dichloride, 1,1,2 trichloroethane, carbon

tetrachloride and ethyl chloride as well. At the current OSHA time-weighted average concentrations, ethylene dichloride is found not to be a problem Nevertheless, they are concerned that using ethylene dichloride for purging their equipment as they have in the past may not be possible in the future, especially if the exposure limit for ethylene dichloride is reduced.

NEWARK

Hank Pitera reported on the past history of exposure control at the Newark plant. He emphasized it was difficult to develop an analytical method for phenol and the cresylic acids produced there, specifically citing problems with the Century unit and Draeger tubes. Although extensive surveys have been made with the Century unit, their value was questionable because that unit measures total atmospheric organics and is not specific for the major toxic chemicals. Considerable efforts were expended in the laboratory to develop an GLC technique to obtain specific results. It was reported they have no set sampling program currently but try to establish sampling during peak periods of exposure. A written exposure abatement program plan is being composed and is not yet published.

GENERAL MEETING

Bob Lehmkuhl, Manager of Manufacturing, spoke to us about his desires for an active, aggressive, efficient exposure abatement program. He emphasized training in handling and use of chemicals, scheduled inspections, improved housekeeping practices, well thought out work rules and plant practices and an active, effective maintenance program. All managers, he indicated, must set good examples in our own activities. We should explain the reasons for the rules and regulations required.

Bob emphasized the need to review written plans for the exposure abatement program. He desired to see the exposure to chemicals reduced so low that the frequency of testing could be reduced and still maintain a healthy work place. It was his specific wish that rewritten plans be submitted to him by 2/1/76, which included consideration of all chemicals in the plant and plant laboratory, with an active program on how to handle them.

During part of our program, the group was split into two teams. Each team was asked to consider and report how they would handle four important topics of interest to many safety personnel. By addressing these topics, we hoped to obtain practical responses based on the experiences of safety personnel operating in the plants. We hoped to make this good advice available to everyone with an oral report to the group. Here are summaries of the responses:

Topic 1 - Develop an action plan to best obtain commitment and cooperation from all plant personnel with the airborne chemical abatement program.

This team stressed the importance of involving the entire plant staff in developing and implementing an exposure abatement program. To get the program off the ground, the plant manager must first be convinced of its

necessity and committed to maintain its high quality. The high regard that any well-qualified manager has for the safety and health of those working for him is strong motivation for him to back such a plan. Other convincing benefits, in addition to this primary reason, are the reduced losses of production and reduced medical cost and absenteeism, with the resultant increase in economy and efficiency in running the plant. This program will also permit him to maintain compliance with any government regulations affecting employee safety and health.

Once the plant manager is committed, it will follow that supervisors working for him will pay attention to the plan's implementation. However, this cooperation will be maximized if the purpose of the plan and the manner in which it will be carried out are clearly and thoroughly discussed with the supervisors. In addition, it's important to set goals and deadlines for each step in the plan. Sufficient discussion should occur with the supervisory staff to get their inputs on how the plan should be formulated. Where necessary, supervisors should be trained so they know their part in the implementation and what their responsibilities are to carry it out.

Commitment of the hourly work force, it was emphasized, can be improved by showing them the benefits of getting behind the exposure abatement program. In particular, emphasis should be made on protection of their own health and well-being and the resulting job security from working in a low-risk plant. Active involvement in developing the program is an equally important stimulus to the cooperation of the plant work force.

As an aid to keeping the attention and adherence to the plan high, it was recommended that progress reports be issued from time to time and an active follow-up of results, which include a reevaluation of the plan, should be periodically made.

Topic 2 - What are the components of an ideal exposure abatement program?

This team emphasized three major components of an ideal exposure abatement program. First, all chemicals must be identified and their toxicity assessed. Employee exposure must be determined for each, identifying where the exposure occurs, who is exposed and to how much.

The second major part is what corrective action will be taken. These were the ones identified, and it's likely some or all would take place simultaneously. Training, if not already in process, must be begun. A continuous monitoring program must occur until exposure is determined to be so low that ample protection can be assured without monitoring. Engineering controls to eliminate sources of emissions should be planned and implemented. While these are in progress or where they are not feasible, work practices must be instituted to provide ample protection. Medical surveillance under the guidance of the Medical Department must be begun or continued. It must include the tests necessary to monitor the body's response to excessive exposure to the specific chemicals in the plant.

Follow-up of previous actions was the third major component. This would be done through continued monitoring, evaluation of corrective actions and comparison of the program to any federal regulations that pertain. Continued monitoring would be an important step in the follow-up.

Topic 3 - What additional resources do you need to better accomplish the objectives of the chemical exposure abatement program?

The most needed resources were additional trained manpower, more specialized equipment and greater technical knowledge. Additional staff with training in industrial hygiene, as well as engineers, chemists, technicians and secretaries, were thought needed to properly carry out an exposure abatement program which adequately dealt with all chemicals in the plant. Each plant might have a team to carry out the program or there might be developed a regional team that would be responsible for several plants.

Additional equipment required were gas chromatographs and continuous sampling pumps for dosimetry. While all the plants have gas chromatographs, they are currently being so heavily used that additional analyses required by the monitoring program overload them.

More technical knowledge is needed by the staff currently handling the exposure abatement program. They need specialized training in sampling procedures, laboratory methods, toxicity evaluations and data handling. Attendance at outside courses was recommended as a way to provide this information.

Four different plants suggested their additional needs as follows:

Need	Plant 1	Plant 2	Plant 3	Plant 4
Additional manpower	2	1 1/2	1	0
Additional equipment	GC Sampling pumps	GC Sampling pumps	Sampling pumps	Continuous sampling pumps
Additional technical knowledge	Toxicity Laboratory methods		Toxicity Sampling procedures Lab methods	Toxicity Sampling procedures Lab methods

Topic 4 - Develop the elements of an efficient record-keeping program that will satisfy the requirements of OSHA and minimize the time spent in record-keeping activity.

This topic may have been the most difficult to develop because handling so many detailed records for so long a period requires a lot of thought to do it sensibly. The group handling this topic was unable to bring out a detailed program but did establish that using the efficient and rapid

logging, storage and retrieval capabilities of a computer would be essential. Modern miniaturizing techniques, such as microfilming, were recommended to save space, especially because many of these records are required to be kept for periods of up to 30 years. Records would include employee's medical and job history, training, personal dosimetry results and a record of his presence in regulated areas.

At the end of our meeting we reviewed how well the meeting objectives were accomplished. They were 1) to get better acquainted with each other, 2) to find out where we stand in the exposure abatement program, 3) to get out good ideas, and 4) to determine where we go from here.

These action steps were indicated:

1. Provide more help for a VC training program. This activity proves time-consuming, especially with the new standards.

2. Get on NIOSH and OSHA mailing lists.

3. Obtain proposed regulations for lab certification for the plants.

4. Send in written modifications of exposure abatement plan by February 1.

5. Develop additional toxicity data for chemicals, e.g., N500 and 1412-40.

6. Explore the quality and adaptability of a course on monitoring and toxicity assessment for the plant staff.

7. Determine a way to develop commonality among plants in our record-keeping.

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