Monsanto

FROM J. J. Murphy Dept. of Medicine & Environmental Health G2WB (4-8836)

MAY 0 1982

DATE April 30, 1982

SUBJECT DMEH/MCIC Industrial Hygiene Program Evaluation

REFERENCE Texas City, 3/10-12/82

TO G. L. Tromblee - 1890

cc D. N. Campbell - 1890
J. E. Fox - 1890
J. T. Garrett - G2WB
J. A. Glass - 1890
J. L. Henshaw - G2WB
P. M. Jeannot - G2WB
D. E. Kaldenberg - 1890
H. M. Keating - G4WA
C. M. McCullough - 1890
W. B. Papageorge - G4WA
S. D. Paul - G2WB
H. O. Reid - 1890
J. H. Spraul, M.D. - G2WF
B. G. Ward - G2WB

PLAINTIFF'S EXHIBIT
MON-2327

Attached are the results and recommendations of the DMEH/MCIC Industrial Hygiene Program Evaluation Team which visited your plant in mid-March.

The evaluation was conducted with Messrs. John Fox and Dan Campbell by Paul Jeannot, Harry Keating, Jim Murphy and Steve Paul. It's purpose was to review the Texas City Plant Industrial Hygiene Program using the 14 elements outlined in DMEH's Bulletin #80-2, "Industrial Hygiene Program Evaluation Guide". These 14 elements comprise the framework for the development of quality sustaining industrial hygiene programs - the goal of all such hygiene programs within Monsanto.

In reviewing the Texas City Plant's industrial hygiene program, an effort was made to identify both strengths and weaknesses. The strengths will be communicated to other MCI locations in order to promote excellent efforts and ideas and prevent unnecessary developmental duplication. Recommendations to improve the weaknesses identified should help strengthen your industrial hygiene program.

We appreciated the opportunity to review and discuss our preliminary comments with Mike McCullough, Henry Reid, Arnold Glass, and John Fox at the completion of our visit. We also thank you for the hospitality and cooperation shown us by Arnold, John, Dan and your plant organization.

If you have any questions or comments regarding this report, please contact Harry Keating or myself.

James J. Murphy

JJM:sml

MAP 005269

IN 10M (REV 2/78)

LAM001096

DMEH/MCIC

INDUSTRIAL HYGIENE PROGRAM EVALUATION

OF THE

TEXAS CITY PLANT

Conducted:	March 10-12, 1982
Report Issued:	April 30, 1982
Evaluation Team:	P. M. Jeannot - DMEH-I.H. Chemistry H. M. Keating - MCIC-Environmental Operations J. J. Murphy - DMEH I.H. Staff S. D. Paul - DMEH-I.H. Staff

MAP 005270

INTRODUCTION

The Texas City plant industrial hygiene program was evaluated against 14 major program elements which have been outlined by DMEH (see attachment) as comprising a quality sustaining industrial hygiene program. This evaluation is part of a company-wide effort coordinated by MCI-Environmental Operations and DMEH to uniformly review the status of each MCI location's program.

The evaluation team spent one-half day reviewing and discussing the written elements of the program (i.e., the standard operating procedures, training presentations, plant policies relating to worker health, etc.) with John Fox and Dan Campbell. A day was spent visiting operating units to evaluate actual practice in the field, and in clarifying previously discussed questions about the program. A summary of the evaluation team's comments was reviewed with Mike McCullough, Henry Reid, Arnold Glass, and John Fox.

Overall, the team felt that a good job was done by the Texas City Industrial Hygiene group in completing the program evaluation document. The comments and recommendations of the DMEH/MCIC Industrial Hygiene Program Evaluation Team are organized according to the 14 program elements and are as follows:

I. General Information

1. This section contains basic information about the plant (major products, guest operations, number of employees, union representation, etc.). It was satisfactorily completed.

II. Organization and Staffing

1. The current staffing level of three professionals and 5 technicians appears ample to meet the needs of the Industrial Hygiene function. It is important that the skills of the hygiene professionals and technicians be maintained and improved through continued (annual where appropriate) professional training (e.g., AIHA sponsored courses on respiratory protection, radiation protection, noise/hearing conservation, etc.).

   Continued technical training and annual participation at the national AIHA[1] conference for the ABIH[2] certified professional is critical toward maintaining a certified hygienist at the plant.

[1]AIHA - American Industrial Hygiene Association
[2]ABIH - American Board of Industrial Hygiene

2. Placing the hygiene lab within the industrial hygiene organization is evaluated favorably. Close coordination and maximum utilization of people and lab resources is a significant positive result of this organizational arrangement.

3. The plant has shown continued commitment of resources to maintain its extensive employee health protection program. The team fully supports this significant and necessary commitment.

4. The respiratory protection and personnel protective equipment responsibilities lie with the safety function rather than the industrial hygiene function. These responsibilities, overall, appear well handled. Since the result sought from each of these programs is the prevention of over-exposure via inhalation or dermal routes, they are often made the responsiblity of the industrial hygiene function. Such a change may at some time be appropriate.

III. Employee Education and Training

1. New employees receive a general introduction to industrial hygiene as part of their "new employee" training. Hourly employees receive training on industrial hygiene related topics as scheduled by their supervision. Departmental supervision receives IH training on an "as requested" basis. The plant also sponsors an "hourly safety committee" which allows approximately 25 employees from all parts of the plant to participate more intensely in the plant safety effort, including IH training. Membership is rotated every 6 months and has involved a large number of plant employees over the years. It appears that a significant effort is being put forth by the plant in the training area. The team supports this emphasis on training and recommends that every department annually use one or two of its monthly safety meetings to discuss pertinent industrial hygiene/ employee health topics.

2. It is recognized that the responsibility for training lies with department supervision. The plant teaches that good safety and industrial hygiene practices are the responsibility of each individual employee. However, the team shares a concern about "Who trains the trainer?" If IH training for department supervision and/or trainers is on an "as requested basis" then weaknesses may exist in quality of the training given to employees. It is our recommendation that the industrial hygiene professionals become more actively

involved in reviewing and evaluating the programs presented on industrial hygiene, particularly for appropriateness of topics and the accuracy of the contents. The hygiene group will recognize the weaknesses which exist in departmental training programs and what direct/indirect assistance from this group is necessary to help any department upgrade its program.

3. Posting of chemicals encountered in a specific department, their specific hazards, and the proper protective equipment for handling these materials was evident throughout the plant. Additional information of this nature is part of every departmental operating manual and is part of the training an employee receives upon assignment into a department. Posting departmental chemical hazards is an excellent way to provide high visibility for this important information.

IV. Contract Employees

1. The effort to deal with the problems of contractor safety and health is quite evident. Both written and visual training material has been developed to explain safety and operating rules to contractors. These training efforts also address in a general way health and safety concerns associated with contractors working within the plant. The team strongly supports continued emphasis in this important area.

2. The plant booklet "Contractors Guide to Accident Prevention" does not discuss related industrial hygiene concerns. We recommend that a section or a series of statements on industrial hygiene be added during the next update of this pamphlet. If the pamphlet "Plant Chemical Safety Manual" was also designed for distribution to contractors, then basic information addressing respirator use, hearing protection, tagging of breathing air cylinders, etc. could alternatively be covered here.

V. Industrial Hygiene/Occupational Medicine Interface

1. The plant now has a resident physician. The plant also utilizes the services of a medical clinic and the community hospital. An in-depth evaluation of the medical surveillance program would require participation by DMEH medical staff and was not planned as a part of this evaluation.

VI. Exposure Assessments

1. Baseline exposure assessments consist of the original base data survey and the initial monitoring assessments made at the plant. The base data survey was conducted by John Fox and Steve Roberts in November, 1975. Initial baseline monitoring assessments were conducted by the plant industrial hygiene group and were completed in 1979. A thorough job was done of gathering this information and these historical documents are essentially complete.

2. The most recent status report on routine exposure monitoring was issued in November of 1980. The industrial hygiene group indicated that more recent summaries have been delayed largely due to efforts being directed at conversion of industrial hygiene and work history data from an interim format into a format programmed for and acceptable to the final MEHI system. The team recommends that a report on the results of current monitoring be issued on a semi-annual frequency. It is understood that the hygiene group will use the MEHI "Industrial Hygiene Status Report" output service to provide a compilation and summary of sampling data gathered over the monitoring period and add written comments as appropriate.

3. The hygiene group currently reports monitoring results back to departmental supervision. On personnel monitoring results above the recommended exposure guideline, follow-up to determine the cause is conducted in conjunction with supervision. On exposure results below recommended guidelines, the option of communicating the results is left to supervision. The team recommends that all monitoring results on employees who wear pumps, badges, etc. be communicated to them whether or not they are above the recommended limits. The plant appears to be in compliance with the specific written reporting requirements of the OSHA acrylonitrile standard applicable to monitoring.

VII. Monitoring Data Integrity (P. M. Jeannot)

Basically this section covers the "nuts and bolts" of the sampling and analyses program. Comments are directed such that we may be assured that the data generated within the program are of the highest quality, and proper documentation exists for the same.

1. Outstanding positive elements of the monitoring (sampling and analyses) program include:

   a. Most documentation is now in place for planned AIHA accreditation by 1983. Included are: a) calibration logs for sampling and analytical equipment, b) maintenance log for sampling and analytical equipment, and c) recent completion of a GLP manual.

   b. Initial efforts on control charts for major chemicals, e.g., AN, Styrene, Benzene, is an important step in documenting laboratory analytical control. This area is strongly emphasized by AIHA laboratory accreditation site visitors.

   c. Monitoring emphasis is in the proper direction as evidenced by the fact that about 85% of the samples taken in the program are personnel samples.

   d. Sampling and analytical equipment are sufficient to do the job presently at hand with the exception that new noise dosimetry equipment will be necessary to comply with the new noise standard. I was particularly impressed with the credentials, both educational and experience, of the personnel within the Texas City I.H. program. The monitoring program, in general, reflects those skills.

2. Specific recommendations within the Texas City program are:

   a. A routine frequency be established for field validation of all I.H. monitoring methods where validation is possible. Continue and expand field validation efforts on passive monitors - particularly because a transition is in process from the previously used pump and tube methods. It should be documented that data obtained using either passive devices or pump and tube methods give comparable results.

   b. Personnel samples should be taken for welding fumes utilizing I.C.A.P. (Inductively Coupled Argon Plasma) or A.A. (Atomic Absorption) for specific metals after filter collection, rather than surveys using a T.S.I. (Thermo-Systems, Inc.) survey instrument.

VIII. Action/Compliance Planning

1. Action/compliance plans apparently exist as part of the routine effort of each department to engineer improvements/corrective projects. Once having the need for corrective action, the IH group relies on department supervision to satisfy the need. No master list of IH projects and the status of corrective action is maintained by the IH group. Without the latter it is difficult to assess performance vs. indicated need. However, we made no observations which would suggest that this practice is not being used successfully at Texas City.

2. The team recommends that an in-depth review be made to ensure compliance with each requirement of the Acrylonitrile standard (OSHA 29CFR1910.1045). Specific concerns are: updating on a 6 month basis the written compliance plan as recommended by Corporate legal (P. S. Park); frequency of quantitative fitting of respirators; and, documentation of annual training of AN exposed workers.

3. It is also recommended that a plant-wide compliance plan be developed outlining additional actions (training, dosimetry, engineering controls, etc.) necessary to meet the hearing conservation amendment to the noise standard. Compliance with this recent amendment will require a concerted effort by medical, hygiene, engineering and production groups.

IX. Information Reporting

1. The plant position that the mortality study had top priority over other activities involving health data collection has been recognized and supported. However, when data processing and support personnel become available, other priority needs exist as follows:

   a. Correcting data already in the MEHI system.

   b. Maintaining the MEHI system "evergreen" with current monitoring (Industrial Hygiene) and Work History (Personnel) data. Currently hygiene monitoring data and work history records are being stored in hard copy form.

X. Noise and Hearing Conservation

1. Recently, Industrial Hygiene re-assumed responsibility for conducting plant noise surveyd in addition to continuing personnel monitoring. The fully supports this more active role.

2. After a plant-wide noise survey is conducted and dosimetry work is completed, an action plan should be developed to ensure compliance with the new OSHA hearing conservation amendment (see Section VIII, item 3). DMEH has recently published Industrial Hygiene Bulletin #82-1, "Hearing Conservation Program Guide", which outlines major elements of an effective, comprehensive program.

3. The team recommends that the practice of posting areas above 95 dBA with time limits (e.g., 95 dBA - Hearing protection required after 4 hours) should be reconsidered vs. the alternative of requiring hearing protection wherever the noise levels exceed 90 dBA. We support the latter approach as providing more effective protection.

XI. Respiratory Protection

1. Historically, the Texas City plant has been a leader in the area of respiratory protection. It has had for a number of years, a qualitative fit/facial hair respirator policy which now is being implemented throughout Monsanto. It has also been a forerunner in the development of dedicated breathing air systems which is another concept being implemented throughout the corporation.

2. The plant has plans to update/revise its respirator program to reflect recent advances in program concepts, including quantitative fit. These concepts have expanded into 11 key program elements outlined in ANSI Z88.2 - 1980 "Standard Respiratory Protection Practices" and explained in DMEH Industrial Hygiene Bulletin #81-2 "Monsanto Respirator Program Guide". The team supports review of such an important plant program.

3. It is our understanding that in the past year the responsibility for respiratory protection was reassigned to Mark Riddle. Advanced training for Mark would be appropriate. We suggest the AIHA sponsored training course attached (Appendix A).

4. By plant policy, medical evaluations of potential respirator users are being made to determine their ability to wear this equipment. Records of these evaluations are being made on an "exception" basis (i.e., only restricted individuals are being recorded). For compliance with the documentation provision of OSHA 1910.134, and the AN standard, OSHA 1910.1045 all evaluations, both approvals and restrictions, should be noted in the individuals medical file. A medical approval form for respirator use is attached (Appendix B).

5. A careful review of the quantitative fitting schedule for 1982 is necessary to ensure that twice-yearly respirator fitting of employees exposed to AN will be accomplished per the requirement in the AN standard.

XII. Personal Protective Equipment

1. Departmental personal protective equipment procedures were reviewed for selected departments during the field walk-thru. The information found in the department operating procedures manual appeared to be adequate to meet the needs of those departments. No failures by employees to wear proper protective equipment were noted.

XIII. Radiation Protection

1. The plant has several sources of both ionizing and non-ionizing radiation. The plant has had for several years a well written radiation protection program which is currently being revised/updated. We recognize the high quality of the program and support the effort to update it.

XIV. Hygiene Facilities and Practices

1. The plant provides special "clean and dirty" lockers for both male and female employees from the Acrylonitrile (all employees), maintenance (insulators) and materials handling (pumper/gaugers) departments. Showering is mandatory/encouraged per the specific legal requirements of the applicable standard. These locker facilities were visited and appeared clean and well kept. Individuals in the insulator shop were questioned and demonstrated an excellent knowledge of asbestos handling procedures.

2. The plant central lunchroom and the eating facilities located within operating departments appear satisfactory. Wash facilities are located convenient to eating areas and employees are encouraged to and apparently do use these facilities prior to eating.

3. Special procedures concerning issuance of work clothing and laundering of contaminated work clothing apply to insulators (asbestos) and on certain maintenance turnarounds. The plant does not normally provide work clothing but subsidizes purchase of work clothing via "clothing cards" issued 4 times/year.

4. The plant does not provide laundry facilities except locally for asbestos or AN contaminated clothing. The team expressed a concern that those who wear work clothes out of the plant can potentially carry chemicals, catalysts, and other agents into cars, homes, etc., where others including infants could contact them. An alternative would consist of daily issue of standardized, laundered work clothing to be left at the plant, and end of shift showering for some tasks.

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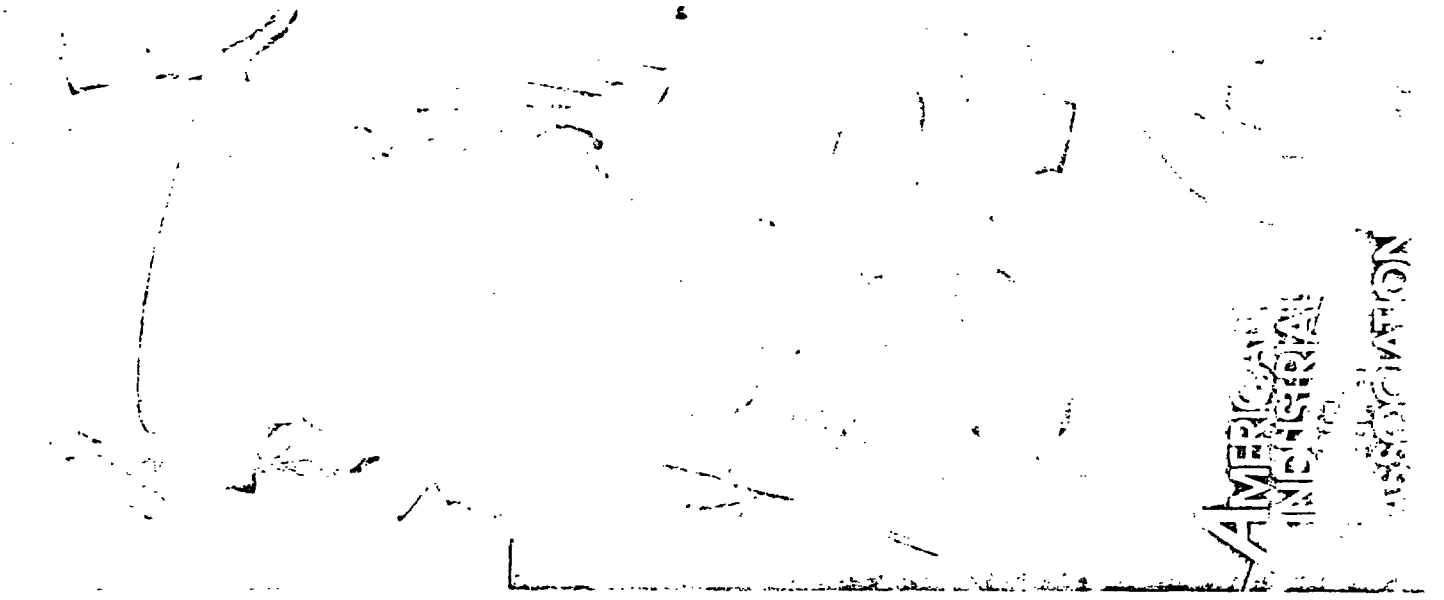

THE AMERICAN INDUSTRIAL HYGIENE ASSOCIATION
475 Wolf Ledges Parkway
Akron, OH 44311

DEPARTMENT
FOR PROFESSIONAL
CONTINUING EDUCATION

INDUSTRIAL RESPIRATORY PROTECTION / ROUTE TO *SAFETY & HEALTH GROUP*

BENEFITS

Course attendees will receive:

- Familiarity with all types of respiratory protective devices.
- Better knowledge of the requirements for a minimally acceptable respirator program.
- "Hands-on" experience in qualitative and quantitative respirator fitting tests.
- Library of reference materials.
- Comprehensive manual on respiratory protection.
- Better justification for expenditures on an adequate respirator program.

COURSE DIRECTOR

JOHN A. PRITCHARD, President, Health Resource Management, Ltd., Los Alamos, New Mexico. Mr. Pritchard is a professional consultant involved in providing occupational health services, including respiratory protection, to various industries and government agencies. Before starting his own company in March of 1978, Mr. Pritchard served as the Alternate Section Leader, in the Industrial Hygiene Group, at the Los Alamos Scientific Laboratory for six years. John is a full member of The American Industrial Hygiene Association and Vice-Chairman of its Respirator Committee.

ADDITIONAL INFORMATION

For additional information concerning this Course, please contact:
THE DEPARTMENT FOR PROFESSIONAL CONTINUING EDUCATION
The American Industrial Hygiene Association
475 Wolf Ledges Parkway
Akron, OH 44311
Attn: John R. Conti

MAP 005281

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INDUSTRIAL RESPIRATORY PROTECTION

INTRODUCTION

Because of the ever growing number of new Occupational Safety & Health Standards (such as; lead, acrylonitrile, and inorganic arsenic), greater emphasis (29 CRF Part 1910.134) is being placed on respiratory protection, in order to protect and preserve the occupational health of employees.

All organizations, regardless of size, are now being challenged to meet the requirements of a minimally acceptable respirator program. The guidelines for the selection, use and maintenance of respirators are often difficult to interpret and implement. In addition, respiratory protection devices are complex items, and they are subject to misuse due to a lack of understanding of their functional characteristics. Therefore, a need exists for organizations to obtain specialized training in effective, practical methods to insure that the requirements of respiratory protection are met and the maximum protection of the employee is obtained. This includes adequate maintenance, administrative controls on use, and the proper education and training of the respirator wearer.

The American Industrial Hygiene Association, the Nation's foremost industrial hygiene authority, is responding to this need by offering a three-day course to organizations that have a staff of health and safety personnel responsible for establishing and maintaining respirator programs.

"...SPECIALIZED TRAINING TO INSURE THAT THE REQUIREMENTS OF RESPIRATORY PROTECTION ARE MET..."

This course can be held at any location within the United States, and it is designed to provide health and safety personnel with the resource information and knowledge to meet the requirements of industrial respiratory protection (29 CFR Part 1910.134).

COURSE CONTENT

FIRST DAY

- Air Purifying Respirators
- Atmosphere Supplying Respirators
- Respiratory Physiology
- Oxygen Deficient Atmospheres
- Breathing Air Quality

SECOND DAY

- The Minimal Acceptable Respirator Program (29 CFR Part 1910.134)
- ANSI Standard Z88.2 — 1969
- The Approved or Accepted Respirator (30 CFR Part 11)
- Written Standard Operating Procedures and Program Evaluation
- The Concept of Protection Factors
- Respirator Fitting and Training
- Respirator Fitting Workshop

THIRD DAY

- Medical Surveillance
- Special Problems in Respirators
- Inspection and Maintenance
- Respirator Inspection Workshop
- Respirator Maintenance
- Respirator Use During Emergencies
- Respirator Selection and Use Workshop

COURSE MATERIALS

Each student will receive the following reference materials in addition to a certificate of completion:

- A Comprehensive Textbook on Respiratory Protection.
- American National Standard (ANSI Z88. 2 - 1969), "Practices for Respiratory Protection."
- Respiratory Protective Devices; Tests for Permissibility; Fees, (30 CFR Part 11).
- Occupational Safety and Health Standards, (29 CFR Part 1910.134).
- Threshold Limit Values (TLV's) for Chemical Substances and physical Agents in the Workroom Environment with Intended Changes for 1978.
- Other miscellaneous reference material for use during the course.

Establishing and Administering the Respiratory Protection Program

Chicago, IL
June 23-25, 1982

A three day course, developed to provide health and safety personnel with the knowledge and skill to meet the requirements for establishing and maintaining a minimally acceptable respirator program.

Benefits you will obtain from attending this course:

- a working knowledge of the applicable Occupational Health and Safety Standards
- familiarity with all types of respiratory protective devices and their functional characteristics
- "hands-on" experience in performing qualitative and quantitative fit testing of respirators
- library of reference materials
- comprehensive manual on respiratory protection
- better justification for expenditures on an adequate respirator program

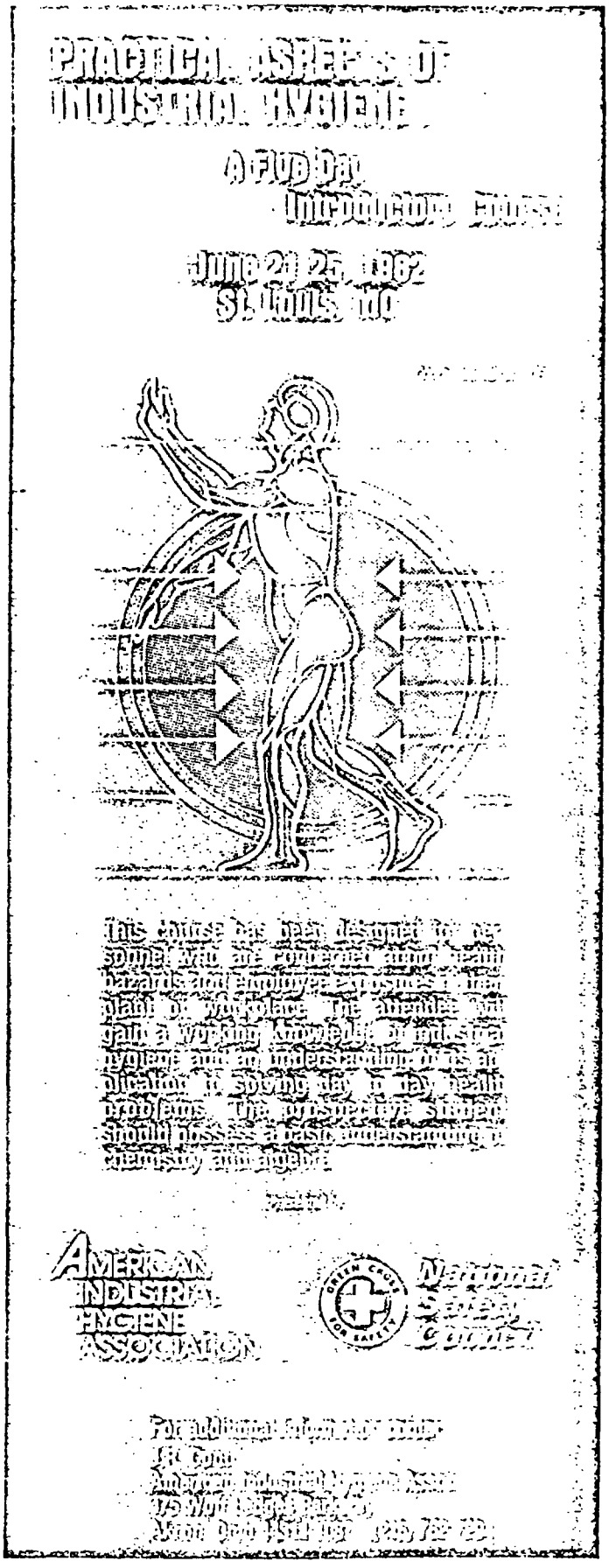
A prerequisite for this course is the completion of a six unit home study section. Every attendee is expected to complete it before he or she attends the course. Therefore, prospective registrants should enroll in this course at least sixty days prior to its presentation.

Future Dates and Locations

- Aug. 23-25, 1982 Los Angeles, CA
- DECEMBER, 1982 St. Louis

To register, or for more information concerning this course, please write or call: John R. Conti, AIHA, 475 Wolf Ledges Parkway, Akron, OH 44311-1087 (216) 762-7294.

AMERICAN INDUSTRIAL HYGIENE ASSOCIATION



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APPENDIX B

RESPIRATOR MEDICAL APPROVAL FORM

NAME _____ DATE _____

	NORMAL	ABNORMAL
FACIAL CONTOURS	_____	_____
INTRA-NASAL EVALUATION	_____	_____
EAR DRUMS (PERFORATION)	_____	_____
CARDIOVASCULAR STATUS	_____	_____
PULMONARY STATUS	_____	_____

BASED ON EVALUATION OF THE ABOVE FACTORS, I CONSIDER THIS INDIVIDUAL:

_____ ABLE

_____ UNABLE

TO WEAR RESPIRATORY PROTECTION IN THE COURSE OF HIS WORK.

REMARKS: _____

_____

_____

_____

(SIGNATURE) _____ M.D.

MAP 005284

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