

Interoffice Memorandum

TO (Name and Location)	Mr. P. A. Turek	DATE	8/7/78
FROM (Name and Location)	W. H. Tuke	REFERENCE NO.	WHT-2274-78

32. **cc: C. E. Steel**

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Industrial Hygiene Projects

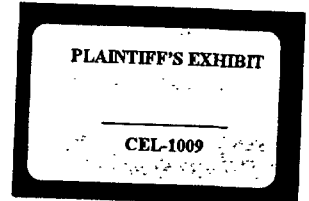
Attached is Mark Stenzel's summary of projects the Plant Industrial Hygienist should complete by the end of 1979. This outline could entail two - four years work and is quite extensive. In addition, Dave Barrett has numerous projects for us which we have not received.

The area of most concern is Maintenance personnel and contract labor. They are subjected to the highest level of toxic substances, yet less has been done in that area. We have only scratched the surface in monitoring welders and other crafts. Also various OSHA regulations such as noise, heat stress, asbestos, ozone, etc. need to be investigated. To accelerate the projects the new Industrial Hygienist will need the help of a technician if the analytical work is to be accomplished (see manpower requirements on last page of attached report).

WHT

W. H. Tuke
Laboratory Superintendent

WHT:cw



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Office Memorandum

(Name and Location)	Mr. W. H. Tuke	DATE	8/2/78
FROM (Name and Location)	M. R. Stenzel	REFERENCE NO.	MRS-103-78

Status of the Industrial Hygiene Function at Pampa Plant

Summary:

The following report outlines the present status of the industrial hygiene function at Pampa Plant and projects the work the position will be required to address in the next year. Also, it is hoped this report will provide some continuity to the new Industrial Hygienist who will be hired in the near future.

The report is divided into three general topics titled Programs, Studies and Administrative Duties. The following outline lists the components covered under each topic:

Programs

1. Contaminant Monitoring and Method Development
2. Status of Projects
3. Medical Surveillance
4. Coal Project
5. Maintenance Employee
6. Contract Labor
7. Review of Purchased Chemicals.

Studies

1. Company Toxicological Testing
2. Welding
3. Noise and Heat Stress

Administrative

1. Safety Committees
2. Toxic Substance Control Act (TOSCA)
3. Asbestos
4. Equipment
5. Manpower Requirements

Discussion:

The responsibility of the Plant Industrial Hygienist function at Pampa is divided into the following three broad topics: Programs, Studies and Administrative Duties. Each topic will be discussed with respect to present status and expected requirements for the next year.

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I. Programs

1. Method Development and Contaminant Monitoring - The contaminants relating to welding will be treated in the welding section.
 - A. Ammonia - A follow-up study needs to be made in Area IV verifying that the modifications made to valves around the DAP unit were an effective means of reducing ammonia exposure. The study should include interviewing the operators and taking Drager tubes samples during the mixing process. Time requirements should be less than one day.
 - B. Acetic Anhydride - Considerable work needs to be done considering all the anhydride Pampa Plant produces. The NIOSH approved method is not acceptable because of interferences. A representative from Union Carbide presented a paper at the AIHC on personal monitoring for acetic anhydride. The writer had previously tried the technique presented in the paper and found that the above procedure cannot distinguish between acetic acid and acetic anhydride. The development of an acceptable method should receive a high priority. If an acceptable method cannot be found, the plant may have to live with acetic acid interference. The problem will be addressed by the Company Industrial Hygienist, but no guarantees can be made. If a method can be found, it would take two to four weeks full time, to complete a monitoring survey.
 - C. Acids (Formic, Acetic, Acrylic, Propionic and Butyric acids) - It is felt that an acceptable method would already have been developed if it had not taken a year to obtain an acceptable G.C. An area monitoring method was developed in 1973. Considerable data was collected in Area III. The writer has made considerable advancements in the development of a method for personal monitoring for the acids. It is estimated that it will take three to four weeks to finish the method development work and four to six weeks to complete the personal monitoring.
 - D. Benzene - The method development has been completed by Pampa Plant. Approximately 250-300 area and personal samples have been collected. It is felt that enough data has been collected to complete an initial determination. The new benzene standard is still tied up in a legal battle. If the monitoring requirements are left intact, the requirements would require about one week per month. It is felt that the investigative monitoring requirements will be considerable but a good estimate cannot be made at this time.
 - E. Chromium - A follow-up study needs to be made in Area II near the catalyst mix tanks. The time requirement would be two to three days. It is felt that enough work has been done on No. 5 Boiler. The chromium exposure problems related to

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welding will be addressed in the welding section. The potential of chromium exposure from the cooling towers should be investigated. Nothing has yet been done on this last project.

- F. Ethyl and Methyl Acrylate - The method of analysis has been developed at Pampa and was submitted to the Company Group. Monitoring is presently underway in the operations area, loading facility, tank car cleaning facility and the Laboratory. The only phases of the monitoring program which are complete are the methyl and ethyl acrylate monitoring in the Instrument Section of the Laboratory and the summer methyl acrylate exposure level of operational personnel. It is estimated that at least six weeks will be required to finish the monitoring.
- G. 2-Ethyl Hexyl Acrylate - Work has begun on the method development. The writer has not advanced far enough with this project to present a reasonable estimate of the time requirements.
- H. Inhibitors (Hydroquinone, Methyl Ether of Hydroquinone, and Phenothiazine) - A polarographic method has been developed. There are sample collection problems using the NIOSH method. Personal sampling should be done on all three inhibitors with the HQ having the highest priority because of the NIOSH criteria document. The greatest exposure is probably during grinding. It is estimated that this project will require at least a week's time.
- I. Lime - No further monitoring is planned for Area I. The water treatment will be phased out with the coal project. The potential for lime exposure in Area IV D. P. Stills should be investigated. The time requirements should be minimal.
- J. Manganese (Permanganate) - No further monitoring is planned unless Area III requests it.
- K. Methyl Ethyl Ketone - No further monitoring is planned. OSHA, NIOSH or the Company Toxicological Test Program could change these plans.
- L. Multifunctional Acrylates - No monitoring is planned at this time. A method has been developed by Pampa Plant.
- M. General - Considerable area monitoring is planned for the Organic Vapor Analyzer. Components with high PEL's such as methanol, methyl formate, acetone and acetaldehyde are the target contaminants. It is felt that at least 6-8 weeks will be spent on area monitoring with the OVA.

2. Status of Projects

- A. Dirty Product Stills - A way to eliminate the need for Maintenance personnel (Celanese or ABI) to enter the D.P. Stills for cleaning is being sought. Presently, the procedure used by Celriver is

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being evaluated. It is felt that the only acceptable solution to the problem would totally eliminate the need for employees to enter the Stills.

- B. Sandblasting - A new sandblasting facility is being installed. When the new facility is operational, exposure of workers should be investigated. It is highly recommended that the abrasive blasting material should not contain crystalline silica.
 - C. Nitric Vent - The problem with the Nitric Vent from V-183 appears to be solved. The Plant Industrial Hygienist should periodically check the ditch at the southwest corner of Area IV to ensure this is indeed the case.
 - D. Laboratory Hoods - A hood flow survey was conducted in the Laboratory and recommendations were made. The Industrial Hygienist needs to work toward getting the recommendations implemented and should complete another hood survey in about six months.
 - E. Production Laboratory Hoods - A hood flow survey should be conducted in the Production laboratories to ensure that their hoods have adequate flow. This includes the two new hoods in Areas III and IV.
 - F. Area III Control Room - The contaminant problem in Area III control room from V-230 and V-231 should be eliminated. Engineering is investigating the situation.
 - G. Air Quality in the Control Rooms - Work with Engineering to ensure that the air quality in the control rooms is acceptable.
3. Medical Surveillance - The following will be coordinated by the Company Industrial Hygienist.
- A. Zone Concept - Presently the Plant is divided into 28 exposure zones. The Occupational Health Evaluation of Employee Exposure to Toxic Agents Forms have been filled out on these zones. Zones for the Laboratory, Front Office and Purchasing Buildings need to be added.
 - B. Input Existing Data - All the existing monitoring data will have to be transferred to forms for computerization.
 - C. Historical Data - Historical Data will have to be obtained on all individuals previously employed at Pampa Plant.
 - D. Employees will have to be trained to work with the new Medical Surveillance Program.
 - E. A procedure will have to be developed to take care of salaried employees in the Medical Surveillance Program.

It is felt that the Plant Industrial Hygienist will spend at least 25% of his time on medical surveillance the first year after the Medical Surveillance Program is approved. The program will be presented to Staff August 14.

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4. Coal Project

The Coal Project will require a minimal amount of time this next year. The only actual monitoring will be for asbestos during the cutting of the Galbestos. The Industrial Hygienist will have to be ready to worry about NO_x, SO₂, hydrazine, ozone, fly ash dust, coal dust, noise and heat stress.

5. Maintenance Employees

The amount of monitoring data needed on Maintenance personnel is greater than all the monitoring data we have collected thus far. This data needs to be collected at the fastest rate possible. The Maintenance employees are exposed to all the chemicals unique to the Plant, plus many which are unique to Maintenance. The problem is complicated by the fact that it is difficult to organize the sampling program.

6. Contract Employees

Guidelines will be issued from the Company. The area of responsibility to the contract employee is presently not defined.

7. Review of Purchased Chemicals

Most of the initial duties will be completed before the new Industrial Hygienist arrives. It is felt that at least two weeks of time for the year will be spent in this area. Elvis Green is coordinating this effort.

II. Studies

1. Company Toxicological Testing

- A. T-44 Residue and Dirty Product Still Residue - The samples were submitted to Litton Bionetics for testing for genetic activity. The results will be issued after they are reviewed by Celanese Corporation Toxicologist.
- B. Ethyl Acrylate - Celanese Chemical Company is participating in a two-year inhalation study with the other major producers of ethyl acrylate. The plant's only responsibility will be to document the ethyl acrylate exposure levels in the plant.
- C. Methyl Ethyl Ketone - Celanese is participating in a teratology study. The results are expected at any time.
- D. Anaerobic Study - Samples were submitted for testing. No pathogenic organisms were found. No future testing is planned.

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2. Welding

A tremendous amount of work needs to be done. The contaminants of concern are chromium, nickel, fluoride, ozone, total particulate and non-ionizing radiation. Because of the proposed revision of OSHA regulations, methods have to be developed for nickel and chromium. Area and personal samples need to be collected taking into account all of the following conditions:

- weather
- type of metal
- type of rod
- type of welding
- position of material being welded.

It is felt that at least three to six months of time will need to be assigned to welding. This is a very high priority area.

3. Noise and Heat Stress

These two areas of concern are presently the responsibility of Safety. A program for the personal monitoring of all employees for noise exposure should be established with Safety in the next year.

III. Administrative

- A. Safety Committees - The writer was a member of the Laboratory Safety Committee, Supervisory Safety Committee and Plant Manager Safety Comm. The Laboratory Safety Committee was very time consuming, but it is felt that a great deal was accomplished. It may be better for the committee if the Industrial Hygienist is not a member but rather just assists the members with their duties. The membership on the Supervisory Committee as a specialist was very worth while and it is recommended that this system be continued. The Plant Managers Safety Committee was very worth while to the writer and it is hoped that the new Industrial Hygienist will also be a member.
- B. TOSCA
TOSCA is being coordinated by the Company Industrial Hygiene Group. The Plant Industrial Hygienist may be asked for information.
- C. Asbestos
The writer was not active in this area. Procedures for handling, cutting and disposing of asbestos need to be established. The new Industrial Hygienist should coordinate this effort with the Environment Maintenance Coordinator.

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D. Equipment

It will be up to the new Industrial Hygienist to review equipment needs. Over the last couple of years, a considerable amount of equipment has been obtained. It is the writer's opinion that the laboratory is in pretty good shape in this area.

E. Manpower Requirements

In reviewing this report, one can see that there are two to four years work which should be completed in the next year. Also, the administrative portion of the position is not compatible with the analytical portion. It is recommended that a technician be assigned to the Industrial Hygiene function. The technician should have a good math background, work with a minimal amount of supervision, and be highly skilled in operating the AA. It is felt that even with two people working in the area, a priority system will have to be established. It is felt that without this technician, the analytical accomplishments of the position will be virtually nil.

Mark Stenzel

Mark Stenzel
Industrial Hygienist

MRS/cw

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