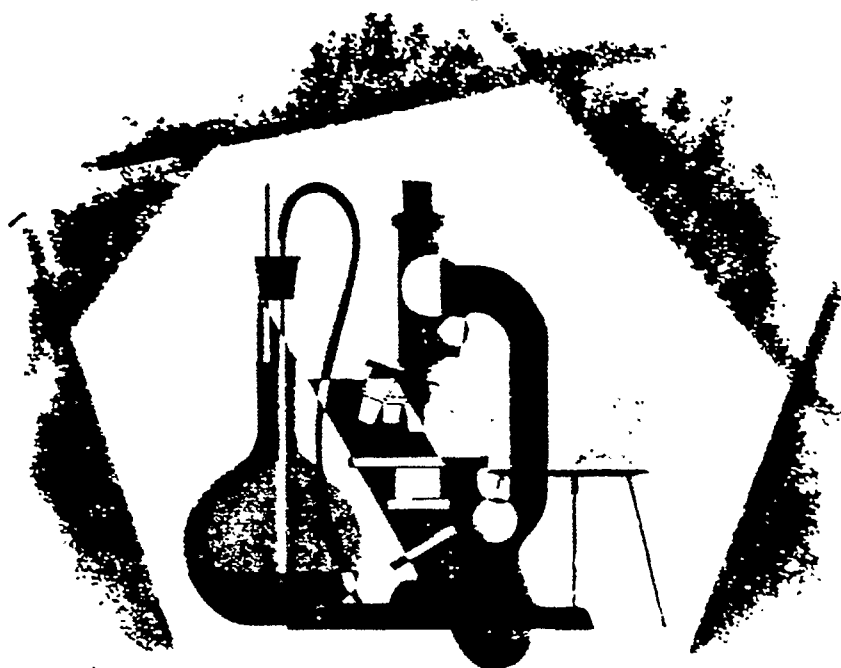


PLAINTIFF'S EXHIBIT

MBL-143



KEEPING WELL AT WORK

STRIPPED of its austere syllables and reduced to warm and friendly terms, *industrial hygiene* is the science of helping employees keep well at work.

Since this field is so broad and complicated, those who devote themselves to it must be dedicated people. Ideally, they should be part doctor, part diplomat, and part detective. But no matter how those three parts are put together, the industrial hygienist still spends virtually all of his time at the laudable task of preventing trouble.

This is vital work, this business of being a constant watchdog over employee health. It is not so spine-tin-gling, perhaps, as tracing down that rare offender, or battling that rare exception which proves the rule. But Humble's industrial hygienists are not

in their jobs for any casual excitement it might bring. They are more pleased with the comforting satisfaction of doing their job, and doing it well. And that effort manifests itself in sound, day-to-day recommendations on health safeguards arising from their skill and training—as well as from the best equipment money can buy.

As an example of this emphasis on prevention, the Company's industrial hygiene engineer is regularly called on to inspect, for health reasons, such things as additives used in products, hand cleaners, solvents designed to remove wax from oil wells, and hundreds of other materials. Not long ago, he was asked to advise on a wax solvent offered for sale to the Company for use in its oil wells. The product proved

it would do an excellent job, but it was too dangerous, chemically, to the men who would have to use it. As a result of this study the product was not recommended, and the Production Department chose another solvent.

In rare cases, of course, something may slip by the tightest defenses. But when it does, regular precautionary measures set up under the Company's industrial hygiene program will bring the trouble quickly to bay and disarm it.

By way of example, regular checks of body fluids from Humble employees at one operation turned up a man with evidence of threatening lead poisoning. Though his condition was not alarmingly dangerous, the danger signals had been hoisted, and it was a good

INDUSTRIAL HYGIENE

Industrial hygiene work within the Company is a function of Humble's Medical Division, and is carried out under the general supervision of Dr. V. C. Baird, Chief Physician. Comprising the staff for this work are Mr. J. W. Hammond, Industrial Hygiene Engineer; Mr. F. H. Pretsch, Industrial Hygienist at Baytown Refinery; and Mr. G. T. Taylor, Industrial Hygiene Analyst, also at Baytown.

During the past decade at Humble, industrial hygiene has been increasingly emphasized as a field of preventive medicine. The aim, of course, is to stay ahead of trouble by preventing its outbreak. Air, materials, and specimens are scrupulously checked for possible contaminants. A hygienist checks, with the assistance of the supervisors and other staff groups, working spaces where trouble may lurk, especially where dangerous chemicals or other materials are used as a part of daily routine.

Where necessary, control features are designed and

methods of work practice are recommended. To make doubly sure that no harm comes to employees, those who work in such surroundings or with toxic materials are tested at periodic intervals. For example, people who work with mercury, leaded paints, tetraethyl lead, and other potentially dangerous substances are examined as regularly as necessary to make sure they are not absorbing dangerous amounts into their bodies.

The work of the industrial hygiene engineer also takes him into Company field communities where, in conjunction with the Civil Engineering Division and others, the water and sewage disposal systems are checked. He also advises on insect and rodent control, counsels on good practice in the use of herbicides and insecticides, and generally sees to it that the health of the community is safeguarded. Any serious illness or dread communicable disease in the community may bring him immediately to the scene—and so far there has been nothing resembling an epidemic in any field community.

thing for him that the precautionary check had been made.

Industrial hygienists from Humble's Medical Division set to work on the case at once. But, disappointingly enough, nothing could be ferreted out from the man's regular work and blamed as the offender. Again and again, the scientists went over the job materials and the job conditions. No

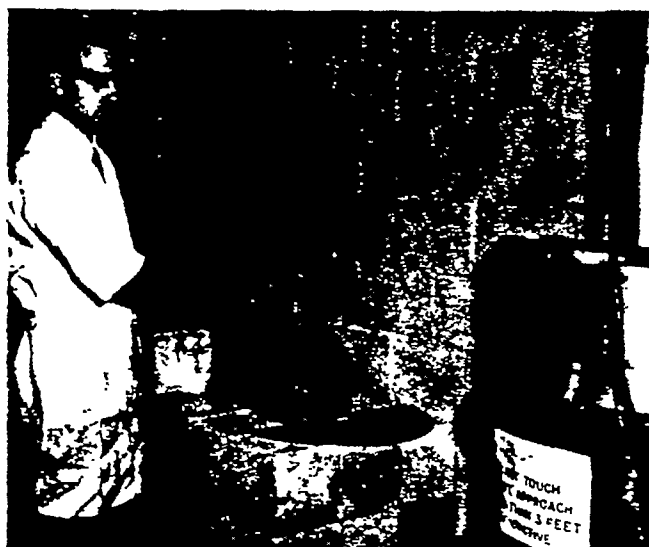
lead-poisoning possible here, was their verdict!

Later, it was determined that the lead poisoning came from a red-lead primer that he was using to spray farm machinery. Once the source was pointed out to him, he discontinued the practice that might have been extremely harmful to him. For him, the hole in the dike had been plugged in

time to prevent a flood of trouble.

Cooperative Effort

Industrial hygiene activities are so many and so varied that Humble's staff could not possibly carry out the Company's extensive program without a great deal of help from others. They depend, to a large extent, on the cooperation of other groups in the Com-



Employees in research are protected from radioactive rays by shields (lead, concrete, etc.) not penetrated by rays.



Sewage effluent is carefully checked to assure adequate treatment; often equals quality of the receiving stream.

pany, on the approval of staff recommendations by management, as well as on independent scientists and organizations.

In the Production Department, industrial hygienists cooperate with Civil Engineering personnel on controlling sanitation, insects which may carry disease, water supplies, sewage disposal, herbicides, insecticides, and ventilation. Two complete rounds of inspections have been made of Company field communities; the first completed about five or six years ago, the second completed last year. Between routine inspections, of course, any trouble or potential trouble at any location may bring the industrial hygiene engineer hurrying to the spot.

Last year, Houston research groups moved into new quarters in the Houston Research Center. Before the move was completed, a new safety manual had been written, and the industrial hygiene engineer served with representatives of other groups in writing the manual. It is his responsibility, also, to cooperate with safety engineers on problems which involve health hazards as well as safety hazards.

Company committees offer much help and advice in analyzing and solving health problems. Company-wide, the Toxicity Committee (of which the industrial hygiene engineer is a member) serves this purpose by studying and making recommendations on questionable materials used in Company operations. At Baytown, the industrial hygiene staff works closely with the refinery's Health and Sanitation Committee.

On some occasions, to help solve particular problems, Humble has made use, on a fee basis, of personnel and facilities at the Houston Medical Center, Baylor Medical College, the University of Texas Medical School, the University of Houston, independent research organizations, and others.

A Fertile Field

One of the most fertile fields for industrial hygiene in all the Company's operations is Baytown Refinery. Here, closely compacted, are to be found all the elements which challenge the hygienist's resources and skills. Here are complicated refining processes using all sorts of acids, caustics, and other chemical compounds. Here are all the potential trouble-makers of heat, cold, and fatigue. Here, too, are the dusts,



Vacuum above this planer in the Main Office carpenter shop sucks up dust and fine particles of wood to protect operator; conveys the refuse to a collection bin.



Ventilating device used in welding operations at the Baytown Refinery Central Shops protects welders by removing irritating fumes, gases from working area.



Mercury collection traps used in repairing meters at the Baytown Refinery instrument shops protect employee health.

If allowed to spill on floors, mercury seeks crevices and small cracks, vaporizes to give off hazardous fumes in air.

gases, paints, and sprays which could cause untold misery if not held in proper check.

With the industrial hygiene staff working through the supervisory and safety groups to hold a tight rein on all these materials and working conditions, any one of which could cause great trouble if left unguarded, work at Baytown Refinery goes on with an amazingly low accident and injury rate. The figures themselves prove that *the employee is far safer inside the refinery on his job than he is at home!*

To arrive at a happy situation like that, some tremendous work has been done by management, acting on the advice of all staff groups. Proper ventilation has been supplied where needed, along with good lighting. Regular "safeguard" tests are made on employees who work with potentially dangerous materials to keep harmful enemies at bay. Correct work methods are prescribed and followed. A great

deal of the work space has been air-conditioned for comfort and health. Studies are even being made on refinery noise! Already, at some locations, screeching steam or clanging metal has been converted into a quieter companion for those who work around it.

The industrial hygiene group works closely with the Departments of Health in all states and communities in which the Company operates. Last year, at the request of employees, the Texas State Department of Health made detailed inspections of Baytown Refinery's mammoth air-conditioned Central Shops, where many mechanical crafts are housed under one roof. Among other information carried in the Department's final report, these statements were made:

"... It can be very positively stated that no hazardous concentration of chemicals or metals was found in the working atmosphere

of the refinery shops building.

"... Illumination levels at work surfaces were found to be adequate and within the permissible limits.

"... In a careful comparison of the environmental facilities, the control of potential hazards and provision of health and medical facilities . . . we feel that your company is among the more modern and is to be commended for the concern it is continuously indicating for the health of its employees."

Humble management, the Medical Division, and its industrial hygiene staff could not hope to enjoy a higher tribute than the one paid in that official pronouncement. In it lies praise for a job well done, as well as reassurance to employees that their health is being guarded as closely and carefully as human skills and the best equipment will allow.