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Chemical plants-cancer link studied

Two federal occupational health agencies have opened investigations of two Houston area chemical plants following reports of 15 deaths from rare brain cancers among workers at both facilities.

One investigation, being conducted jointly by the Occupational Health and Safety Administration (OSHA) and the National Institute on Occupational Safety and Health (NIOSH), involves petrochemical workers at a plant operated by Union Carbide Corp. The second investigation, by OSHA, involves a Monsanto chemical company plant. Both are located at Texas City.

The major investigation centers on the Union Carbide plant, where 11 cases of brain cancers have been discovered and all but one of the affected workers are dead. At the Monsanto plant, five employees have died of brain cancers.

Nine of the 11 cancers among Union Carbide employees and two of the five Monsanto cases were reported on death certificates from 1962 to 1978 to be glioblastoma multiforme, a type of brain cancer that has been linked in previous human studies to the chemical vinyl chloride, OSHA officials said.

BOTH VINYL CHLORIDE and acrylonitrile, a chemical that has been shown to cause brain tumors in animals, have been used at both plants at various times.

"Both (chemicals) are suspect . . . solid leads," said Victor Alexander, MD, OSHA's chief medical officer. "But it's one thing to say the stuff is there . . . and quite another to tie it all down completely, which we may never do," he warned. No firm correlation has yet been established with the Texas City cases, he emphasized.

At the Union Carbide plant, about 30 miles south of Houston, federal and company officials are preparing to computer code some 7,000 to 10,000 records of employees since the plant's opening in 1941 in attempts to identify all possible cases of brain tumors and to develop statistics for comparison with figures for Texas and nearby states, said Sanford Leffingwell, MD, NIOSH medical officer and project officer. A "longer range plan," he said, is to check the records to develop statistics on all causes of death.

Meanwhile, Union Carbide officials also have announced plans to expand their own study to include records of past and current workers at two other plants near Charleston, W. Va., a group that may include up to 50,000 persons since the 1930s. At one of those plants in 1974, a significant number of cases of the rare liver tumor angiosarcoma were linked to vinyl chloride exposure.

"BECAUSE THE recent Toxic Substances Act and other legislation and studies have implicated or may potentially implicate dozens of molecules as human hazards, if we don't undertake a rather systematic, scientifically sound search of our data by research standards of contemporary epidemiology, then we can visualize ourselves doing this kind of Texas City study over and over again for a number of molecules," said Damon Engle, manager of the Texas City Union Carbide plant.

The 11 brain cancers among Union Carbide's Texas City workers came to light after an employee filed a complaint with the local OSHA office last Nov. 27, alleging a high incidence of such tumors among employees in the chemical shipping area of the plant, Engle said.

The employee made the complaint after he left work on a permanent and total disability, Engle added, although he refused to disclose whether the employee was one of the cancer victims.

After OSHA began a standards compliance investigation, Union Carbide officials began sifting through some 450 death certificates from employees who had died since 1941 and discovered nine of the 11 brain cancers, which they reported to OSHA. The workers ranged in age from

30 to 65. The plant currently has about 2,300 employees.

NIOSH investigators entered the case in early February after OSHA requested technical assistance.

The Monsanto plant became the subject of an OSHA compliance investigation in mid-February as an outgrowth of "information we were developing" in the Union Carbide study, said OSHA's Dr. Alexander.

"In developing that information, we got a list of people having primary brain tumors at a second plant, five names." Those cases are not confirmed, he said.

At this point, said Dr. Alexander, "We are concentrating our efforts on the first plant. We have 11 tumors there. There's more to go on. We're involved in a major investigation, . . . a serious effort. The

information at the second plant is at a much more preliminary stage."

Dr. Alexander said if the nine glioblastomas among the 11 Union Carbide cases are confirmed, it would be an "unusual and striking cell type distribution — an unlikely, distribution."

He said that in the areas surrounding the Texas City plants, it has been estimated that there would be only about 4.5 deaths from all types of brain cancer per 100,000 persons per year, with deaths from glioblastoma "only a fraction of that."

A key part of the investigation, he added, will be to set up a pathology referral center that would collect and study tissue slides, pathology reports, medical records and other worker health data in attempts to "determine the accuracy" of the death

certificates.

The compliance investigations at both plants are not yet complete and Dr. Alexander refused to comment on them.

Although Texas City has six or seven petroleum refining and chemical plants, federal investigators have not received reports of similar brain tumor clusters at other plants, he added.

According to preliminary information, said Dr. Leffingwell, investigators have not confirmed whether the Union Carbide workers may have been exposed to a carcinogen in any one area of the plant.

"There were a few who worked directly with vinyl chloride, but others who were not obviously exposed to it.

"The plant uses other chemicals which may be carcinogens — such as ethylene oxide and fair amounts of acrylonitrile — and we think it's important not to focus too narrowly on vinyl chloride in this investigation."

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