

NIOSH finds more brain cancers among chemical workers in Texas plants

Concern over brain cancer deaths among chemical workers continued to mount last week with the discovery that five deaths among former employees at Monsanto's Texas City, Tex., chemical intermediates plant were attributable to brain tumors, and that two of the deaths could have been caused by the type of cancer known as glioblastoma multiform.

The Occupational Safety and Health Administration and the National Institute of Occupational Safety and Health have been investigating brain-cancer deaths since the discovery that nine employees of Union Carbide's Texas City plant died of glioblastoma between 1962 and 1978. One employee with glioblastoma is still living (*CW*, Feb. 28, p. 22).

OSHA began investigating deaths at the Monsanto plant as the result of a "compliance complaint" received shortly after the discovery of the cancers at Union Carbide. The cases at Monsanto were reported after an initial review of 1,200-1,300 health records of employees and former employees at the plant. Spokesmen for Monsanto say that only two of the deaths could be attributed to glioblastoma, and that there is "no evidence" that the other three were of that rare form of cancer.

Initial indications were that the deaths at both plants could be linked to vinyl chloride monomer but Ben Bare, senior industrial hygienist with OSHA's area office, says several chemicals are now being studied and "the list is growing every day." Included: acrylonitrile, ethylene oxide, polyethylene and their intermediates. Monsanto, which has not made VCM at Texas City since 1968, says it is conducting a study of its employees "stretching back 30 years" and will start another check in phases in cooperation with OSHA and NIOSH.

Vinyl chloride is a suspect as the cause of the cancers because several studies have linked VCM to glioblastoma and other types of brain tumors and because many of the workers with glioblastoma had been exposed to VCM. One study that made a connection between VCM and glioblastoma was sponsored by the Manufacturing Chemists Assn. and published early last year. The study, conducted by Equitable Environmental Health Inc. (Rockville, Md.), examined the death certificates of 9,677 workers exposed to VCM at 34 plants. As well as reporting the incidence of angiosarcoma, the main type of cancer

linked to VCM, the study showed an excess of brain tumor deaths—12 where statistically there should have been six.

And now there is evidence that the incidence may be even higher than expected. Although 431 death certificates from Union Carbide's Texas City plant were included in the MCA study, none were for victims of glioblastoma. According to Joseph Wagoner, director of OSHA's office of carcinogen identification, "There were no brain cancers among that group of workers" although he points out that the criteria for selecting workers may have inadvertently excluded those with glioblastoma.

Carbide says it submitted data in answer to specific requests by the MCA study group. And the extent of the Carbide workers' exposure to VCM is uncertain. According to Sanford Leffingwell, who heads the NIOSH study team, five workers were clearly exposed, and for two others, evidence is "tenuous." □

Indians unhappy with paper firms' land offer

The continuing dispute between Maine's tribal Indians, state leaders and paper companies apparently is not over. Although the state's political leaders and paper makers have endorsed a White House proposal for a \$37-million out-of-court settlement of land claims by the Passamaquoddy and Penobscot tribes, the Indians are still not ready to okay the deal. The tribes, faced with a Mar. 11 deadline for a decision on the settlement package, said they will seek an extension because of misgivings about the land offerings.

Under the White House plan, the federal government would pay \$27 million to the Indians to end their claims to 12.5 million acres of Maine land. The government would also give them \$10 million to buy timberland from some of the state's paper firms.

Attorneys for the paper companies are still in the process of identifying possible parcels. But the Indians reportedly are unhappy with the location of some of the land and contend that the offerings include inferior tracts. One tribal leader said some of the land is "very average, like the top of a mountain." He added, "The tribes don't want their new territory to consist of isolated parcels scattered all over the state."

The tribes did not specify how much extra time they will need to consider the deal. They have taken their deadline request to the U.S. District Court in Portland. □

Judge lets EPA ban on 2,4,5-T stand

Dow Chemical and 10 co-plaintiffs lost the first round in their attempt to roll back the Environmental Protection Agency's Mar. 1 emergency suspension on use of the herbicides 2,4,5-T (trichlorophenoxyacetic acid) and Silvex.

The 11 companies and trade associations, including users and makers of the herbicides and agricultural and forest-products groups, had sought a temporary injunction against EPA's action in U.S. District Court in Flint, Mich. They asked that the move be found "arbitrary and capricious and done without observance of procedures required by law."

Although U.S. District Court Judge James Harvey declined to rule on the case, he did grant a request for an expedited schedule to review the facts of the ban, which requires EPA officials to appear in Flint. In response to EPA's bid for additional time to prepare its case, Judge Harvey ordered the hearing for Mar. 19.

Certain to come out at the hearing are Dow's sharp criticisms of the EPA data that led the agency to suspend use of 2,4,5-T. An EPA study of eight women in the Alsea Basin of Oregon found an association between 2,4,5-T sprayings in the area and 13 miscarriages they suffered between 1972 and 1977 (*CW*, Mar. 7, p. 21). The agency reported a peak in the spontaneous abortion rate four to six weeks after the herbicide was sprayed on forests near their homes.

But Dow notes that, "Upon review of this Oregon study, we find the researchers have used inappropriate data; ignored other obvious causes of miscarriages; and applied selective statistical manipulations of the data . . . their research failed to demonstrate any cause/effect relationship between 2,4,5-T and spontaneous abortions."

Perry Gehring, Dow director of health and environmental research, notes that EPA's "peak" theory doesn't hold up, since the accumulation of toxins necessary to cause miscarriages in the women would occur gradually. A gradual incidence, rather than a sudden peak of miscarriages, would be more likely, he said. In addition, miscarriage peaks occur throughout the nation, even in June when the Oregon women aborted, Gehring said.

Another Dow criticism: EPA measured hospitalized spontaneous abortions but, because the Alsea region has so few physicians who treat women with miscarriages in their offices, the women were referred to hospitals more often than were women in the control region. □

OSHA, NIOSH study brain-tumor deaths at Union Carbide facility

Following the discovery that 10 employees at Union Carbide's Texas City, Tex. plant had died of brain tumors, the Occupational Safety and Health Administration and the National Institute of Occupational Safety and Health are conducting an epidemiological study of 8,000-10,000 present and former workers at the plant. The investigation resulted from a worker's complaint last November, alleging an abnormal incidence of brain tumors among personnel in the company's chemical-shipping area.

OSHA inspectors visited the plant on Dec. 13, 1978, and Jan. 8, 1979, and reported last week that examination of Carbide's medical records revealed 11 brain-tumor cases, including 10 deaths. Nine of the workers had died of a form of cancer called glioblastoma multiforme; the living worker is believed to have glioblastoma. The other employee died from meningioma, another type of brain tumor.

According to OSHA Administrator Eula Bingham, "The total number of brain tumors so far would appear to be higher than expected for a plant population this size." At the start of the investigation, which is expected to take about a year, vinyl chloride monomer is the leading suspect. While VCM is most commonly associated with angiosarcoma, a form of liver cancer, several studies have linked it to glioblastoma. Sanford Leffingwell, a NIOSH medical officer who is heading the epidemiological study, cites a 1976 study by Richard Waxweiler published by the New York Academy of Sciences, and a later study by Italian researcher Cesare Maltoni that showed an incidence of another type of brain tumor in rats exposed to VCM. A study supported by the MCA also recognized an incidence of glioblastoma among the workers exposed to VCM in its sample.

Carbide says that the affected workers were exposed to VCM in 1950-1965, but evidence at this point is far from conclusive. Leffingwell says that other chemicals in use at the plant, including ethylene oxide and acrylonitrile, are possible causes of brain tumors and will be examined. It is also possible, he points out, that the number of glioblastomas could turn out not to be excessive for a plant with approximately 2,000 employees. In the period since 1941, there have been 455 known deaths of Carbide employees at Texas City, although all 10 in which brain tumors were listed as the cause occurred

in the years between 1962 and 1978.

Shock Waves: Even the tentative link to VCM has sent tremors through the vinyl industry. On February 13, Union Carbide plant manager Damon L. Engle sent a letter to employees at Texas City apprising them of the brain-cancer cases. A similar letter was given to employees at Carbide's S. Charleston, W.Va., facility, and other VCM manufacturers were informed of the findings at Carbide. A Dow Chemical statement cautions against hasty correlation of the deaths with VCM. Dow says that mortality studies conducted recently at Freeport, Tex., and last year at its Plaquemine, La., VCM facilities failed "to show any indication of a similar situation. Both studies showed no deaths from brain tumors among VCM workers."

The joint OSHA-NIOSH investigation team is gathering data. As a result of findings to date, OSHA is also investigating a "compliance complaint" at Monsanto's operations in Texas City and says that it is possible that other plants will also be checked, though none has been identified.

Davis Layne, area director of OSHA's Houston office says "We are just beginning to turn the leaves, and it all depends on what turns up." □

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**OSHA-NIOSH TEAM PROBING
BRAIN-TUMOR INCIDENCE**

Washington—A government team is looking into reports of brain-tumor incidence among workers in two Texas City petrochemical plants, Dr. Eula Bingham, Assistant Labor Secretary, said last week.

Dr. Bingham, who heads up her department's Occupational Safety & Health Administration, said the investigating team is made up of representatives of OSHA and the National Institute for Occupational Safety & Health, plus local technical personnel.

The investigation is centering on plants of Union Carbide and Monsanto, Dr. Bingham said, adding that the Carbide probe began after a worker complaint was received 27 Nov. charging a high incidence of brain tumors among workers and former workers at the plant.

Dr. Bingham said that "while it is too early, and there are too many chemicals present and in use, to reach a definite correlation between any particular chemical and tumors," OSHA has already established, as to the Carbide plant, that, "so far, there are 11 known cases of brain tumors in workers" of the plant.

This number, she added, "would appear to be higher than expected for a plant population of about 2,000 workers."

OSHA sources added that "at least two" similar cases have been reported at the Monsanto plant.

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PVC pull-out planned

Uniroyal Chemical made a tentative decision last week to discontinue polyvinyl chloride resin production at its Painesville, O., plant. The company's PVC production amounts to about 125-130 million lbs./year.

"Exceedingly large capital expenditures" needed to stay in the PVC resin business and meet Occupational Safety and Health Administration worker safety standards and proposed Environmental Protection Agency emission rules are behind the planned pull-out.

The firm's ownership of the plant dates to 1950.

Uniroyal declined to say how close it is to satisfying the OSHA requirement—set to take effect in April 1976—that vinyl chloride monomer exposure levels for workers not exceed 1 part per million. Employees in operations currently exceeding that level have been wearing respirators, the company says.

About 230 workers would be affected by the shutdown.

Uniroyal stressed that a halt in PVC manufacturing would not affect its Paracril synthetic rubber output at Painesville, nor its Naugahyde vinyl-coated fabrics operations in four other plants.

The company also said it will continue to produce VCM at its jointly owned (with Borden) Monochem installation in Geismar, La.

Drawbacks in new rules

Industry and governments should look into the consequences of developing more uniform international standards for registration of new pest control chemicals. Charles Reece, chairman of ICI Ltd.'s Plant Protection Division told the annual meeting of the National Agricultural Chemicals Assn. in White Sulphur Springs, W.Va., last week.

Reece said that it is taking longer to find, prove and register new products, mainly because of demands from registration authorities for more evidence on toxicology, residues and environmental effects. Such a trend might eventually leave the market in the hands of a few large multinational companies, increase the costs of crop protection chemicals, and force companies to develop chemicals only for major crops "that can provide sufficient volume of use to recover costs," he said.

Reece also suggested industry should consider an international information system on pesticide supply and demand.

Benefits would come in improved estimates of crop losses, of the economic advantages of using pesticides and of progress in developing resistant crop varieties.

ICI, Reece said, feels that industry as a whole could benefit from such a system, provided it was conducted confidentially by an independent body.

Aluminum tabs trimmed

Aluminum producers Alcoa, Reynolds Metals and Alcan Aluminium last week increased their discounts on flat and coil sheet aluminum in response to recent discounts made by Martin Marietta Aluminium and Kaiser Aluminum & Chemical (CW, Oct. 1, p. 17).

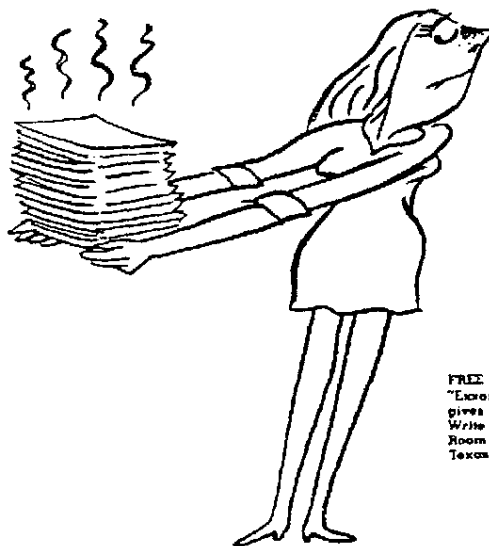
Alcoa says it will meet the rates of competitors on shipments of such products from Sept. 24 to Dec. 31. Reynolds told customers it will meet the price levels on certain common alloy sheet and coil items, but did not specify the dates. Alcan says it will give a discount of 2.7¢/lb. for flat and coiled specification sheet in gauges 0.006-0.125 in. for selected alloys, effective Sept. 29 through Dec. 31.

OSHA adds to its list

The Occupational Safety and Health Administration last week proposed standards for asbestos, lead and toluene that would lower the permissible levels for worker exposure and also require that companies take steps to protect workers when exposure reaches one-half the new level. In addition, the agency proposed new worker protection regulations for 11 chemicals being reviewed for additional rules as part of a two-year OSHA project (CW, Sept. 10, p. 17).

The standards would lower exposure levels for asbestos from 5 fibers/cu. centimeter to 0.5, averaged over an eight-hour period; toluene from 200 parts per million to 100 ppm.; and lead from 200 micrograms/cu. meter to 100.

OSHA's proposed rules for 11 other chemicals would also impose the "action level" requirement on companies but would not change present exposure limits. The chemicals: cumene; ethylbenzene; alpha-methylstyrene; styrene; vinyltoluene; cyclohexane; camphor; mesityl oxide; ozone; p-tert-butyltoluene; 5-methyl-3-heptanone.



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