



Inter Office

Environmental and
Safety Engineering

November 26, 1973

Mr. R. L. Gealer

cc: G. F. Bush
P. E. Toth

You may want to obtain the material on asbestos and health.
I have not written in for it. If you in fact send for it,
I would appreciate seeing it.

A handwritten signature in black ink, appearing to be "J. U. Damian".

John U. Damian
Vehicle Noise Programs Manager

Attachment

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PUBLICATIONS:

IMPACT Analyzing environmental impacts likely to result from proposed projects is a task more and more companies will face as federal and state rules tighten. Two experts have written a handbook on the basics of preparing environmental impact statements. In their "Primer on Environmental Impact Statements," Frank Cross, an engineer with Roy P. Weston, Inc., and Ronald Barbaro, private environmental consultant, go from legislative review to detailed samples of data in various types of EIS. Separate chapters cover the basics of evaluating impacts of air, water, solid waste, noise and marine pollution. 140 pages, 32 tables and 45 illustrative figures. Technomic Publishing Co., 265 W. State, Westport, Conn. 06880; \$20.

NOISE The American Petroleum Institute has a manual--111 pages--to help industrial companies evaluate and control operating noises. "Guidelines for Noise," from the API, 1801 K St., N.W., Washington, D.C. \$5.

WATER LAW From a series of regional workshops and a national seminar, the Water Pollution Control Federation compiled key comments, questions, answers on the 1972 Federal Water Pollution Control Act. 100 pages. \$4 to members of WPCF, \$8 to others--from WPCF, 3900 Wisconsin Ave., Washington, DC 20016.

STRIP MINING In 150 pages, the Natl. Coal Assn. published 12 papers from the 30 presented in March at the NCA symposium on mined-land reclamation. They report on problems and solutions in restoring strip-mined land. Authors are company executives, state and federal experts. Photos, tables and graphs are liberally used. NCA, 1130 17th St., N.W., Washington 20036. Single copies free.

LAWS SUMMARY Publication has begun of a seven-chapter compilation of the legal authority under which EPA operates. Solid Waste and Noise are the first two chapters available. Others will be General, Air, Water, Pesticides and Radiation. The Government Printing Office has the work under Stock No. 5500-0065.

HYDROLOGY "Principles of Hydrology" is a reprint of a 720 page text by Prof. Donald M. Gray of the U. of Saskatchewan in Canada. Its 21 sections and 218 figures are largely technical handbook matter for practitioners and students, but some of the definitions, other basics are worthwhile to laymen interested in hydrology. Canadian data is used for most examples. Water Info. Cntr., 44 Sintsink Dr. E., Port Washington, N.Y. 11050. \$12.50.

HEALTH FACTS In "Health Effects of Environmental Pollution" EPA discusses in general terms what the potential health dangers are from air, water, noise and solid waste pollution. The 24-page pamphlet also touches on odor, pesticides and radiation, and comments on aspects of cancer, birth defects, changes in heredity. From the U.S. Government Printing Office in Washington, 30¢.

U.N. PAPERS Some 403 documents were submitted from the nations participating in the 1972 United Nations Conference on the Human Environment held in Stockholm. They've been compiled on paper and microfilm. Free catalog of the documents is available from Unipub, Inc., at P.O. Box 433, New York, NY 10016.

ASBESTOS The Asbestos Information Assn. has published an information file on "Asbestos and Health," defining the material, detailing plant worker protection, including medical papers, etc. From AIA, 22 E. 40th St., New York, N.Y. 10016.

YOUR DRINKS In a 16-page pamphlet, EPA gives an informative general picture of where we are and where we are going in ensuring that drinking water supplies are safe. EPA-Public Affairs, Washington 20460. Free.

ABSTRACTS Some 8500 abstracts of water quality literature are in "Water Quality Abstracts," from Pollution Abstracts, Inc. They cover primary sources published from 1970 through 1972. 1000 pages. \$49 from PAI, P.O. Box 2369, La Jolla, Cal. 92037.

airandwaternews

801 7 New Center Bldg Detroit, Michigan 48202

(313) 871-1111

Editor and Publisher Stanley H. Brame

News Editor Lawrence G. Keller

Washington Editor Donald N. Barnes

Operations Manager Linda J. Meier

Editorial Assistants

Andrea Lee Felton

Roberta J. Furkas

Barbara G. Popkin

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expectation of life may then be similar to those of non-sufferers, but only through this slowing down. Other data from the study are criticized. The figures might also be explained in terms of the substantial reduction in the manpower of the coal industry since 1951. If a significant number of those in category A in 1951 left mining, they would have lived longer; the survival rate for category A may thus appear similar to those for less severe categories, but again the effects of the disease may be disguised. --Cond. from text

- 1521/73 International Symposium on Dust Explosion Hazards in Mining and Industry. G. Kuhnen. Staub Reinhalt. Luft 32: 32-34, Dec. 1972. 18 refs.

Papers from the symposium held October 11-13, 1972 in Karlovy, Czechoslovakia are summarized briefly.

--J.F.B.

- 1522/73 The Locus of Pathogenicity of Asbestos Dust. P. Gross and R.A. Harley. Arch. Environm. Health 27: 240-242, Oct. 1973. 8 refs.

Documented experimental evidence, as well as the results of preliminary experiments, are presented which indicate a reduction in pathogenicity as the polyfilamentous arrangement of asbestos dust particles is replaced by a monofilamentous structure. On the basis of this evidence, it is proposed that the locus of pathogenicity of asbestos dust particles resides in their polyfilamentous structure. --Authors' abst.

- 23/73 Asbestos and Laryngeal Carcinoma. M.L. Newhouse and G. Berry. Lancet 2: 815, Sept. 15, 1973.

The mortality experience from carcinoma of the larynx among workers at an asbestos, textile, and cement factory was studied. Among a cohort of over 4000 workers followed since 1933 there have been 2 deaths from this cause: one in a man employed making sections of asbestos cement pipes for 13 months starting in 1939, who died in 1983; the other in a disintegrator employed for 1 month in 1949 and dying 13 years later in 1962. In both jobs there was severe exposure to asbestos dust. The smoking habits of neither man is known but it may be presumed they were smokers, since a survey in 1972 showed approximately 90% of the male workers at this factory did smoke. The observed mortality from cancer of the larynx and of the lung and pleura contrasted with the expected mortality calculated from the rates of the male population of England and Wales was:

Mortality of 1327 workers with severe exposure to asbestos dust					
Cancer of larynx			Cancer of lung and pleura		
(ICD 181)			(ICD 162-183)		
Length of exposure	Obs.	Exp.	Obs.	Exp.	
Less than 2 years in job	2	0.17	20	6.8	
More than 2 years in job	0	0.20	20	8.4	
Total	2	0.37	58	13.0	

There were 2 deaths from cancer of the larynx and the expected number was only 0.37, but the association is difficult to test by a prospective study because of the rarity of this tumour. The ratio of the observed number to the expected number in this study is 5.4, whilst the approximate relative risk in the retrospective Liverpool study may be calculated as 14.5. However, these two values do not differ significantly. The 2 deaths reported are of men with short exposures to asbestos, contrasting with cancer of the lung and pleura, where the excess increases with length of exposure. The cohort is still being followed and more information will become available. Substantially entire text

- 1524/73 Asbestos Dust is Linked to Disease. Anon. Occ. Hazards 35: 83, Oct. 1973.

The disease associated with asbestos dust are asbestosis, lung cancer and mesothelioma. Scientists have also found some evidence linking asbestos exposure to gastrointestinal cancer. Scientists also don't know how asbestos causes cancer. Some scientists think that somehow the structure of the asbestos fibers themselves causes cancer. Others think that trace metals in the asbestos are the cause. Nickel and chromium, known carcinogens, are common impurities in asbestos. One school of scientists hold that asbestos may work as a cocarcinogen, and, with another agent such as cigarette smoking bring on cancer. The mystery that most divides scientists is the reported higher rates of asbestos-related disease among workers employed in manufacturing and construction than among a comparably exposed group of workers employed in mining and milling. --Cond. from text

- 1525/73 Experimental Infective Pneumoconiosis: Effect of Asbestos Dust and Candida albicans Infection on the Lungs of Rhesus Monkeys. S.H. Zaidi, R. Shanker, and R.K.S. Dogra. Environm Res. 8: 274-286, Sept. 1973. 24 refs.

The combined effect of *Candida albicans*, a facultative pathogen in the normal physiological condition in the throat of miners, and amosite dust produces after intratracheal inoculation extensive collagenous fibrosis at 330 days in rhesus monkeys. The lesions produced by amosite dust alone comprise fine reticulin fibrosis around bronchioles and blood vessels and moderate interstitial fibrosis. The *C. albicans* infection alone caused acute inflammatory reaction in the early stages while at the termination of experiment (330 days) the only evidence of pulmonary candidiasis was a few small fibrotic foci of compactly arranged reticulin fibers.

--Authors' abstr.

- 1526/73 The Asbestos Industry Struggles to Comply with a Tough, New Standard. R.J. Snider. Occ. Hazards 35: 87-88, Oct. 1973.

Under the OSHA asbestos standard, 8-hour exposure to asbestos dust will drop from the present limit of 5 fibers longer than 5 microns long per cubic centimeter of air to 2 fibers in 1978. The asbestos industry's leading company which operates 55 of the 400 asbestos manufacturing plants in the United States, is already only a whisper away from meeting the 2-fiber standard in most of its plants. "Efforts to meet the standard in advance of the 1978 deadline are vigorously underway in the entire industry," Clifford Scheckler, currently a consultant, told an Occupational Hazards editor. The Asbestos Information Association estimates the asbestos industry will spend \$100 million in the next 3 years to meet the OSHA standard. The efforts combine engineering controls to limit worker exposure to asbestos dust and safety educational programs beamed to asbestos workers and customers.

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- 1527/73 Epidemiologic Surveillance of Mesothelioma in Canada. A.D. McDonald and J.C. McDonald. Can. Med. Assn. J. 109: 359-362, Sept. 1, 1973. 3 refs.

The number of fatal malignant mesotheliomas was ascertained for the period 1960-70 by contacting all pathologists in Canada. The annual incidence was steady between 1966 and 1970 at 1.4 per million population. Of 71 cases registered in 1968-70 and not previously reported, 66% were pleural, 24% peritoneal and the remainder mesothelioma of the testis. The diagnosis of mesothelioma was approved by the Canadian Mesothelioma Panel in 1971. Sixty-nine cases were successfully investigated epidemiologically. A history of definite or probable occupational asbestos exposure was found in 30% of male cases compared with 11% of controls, but in none of the female cases or controls. However, among cases, four women and one man had had domestic exposure to dusty clothing of an asbestos worker. Most of the excess occupational exposure was in the manufacture of asbestos products for insulation and little in mining or milling. No case other than those occupationally or domestically exposed had lived within 20 miles of asbestos mines or mills.

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- 1528/73 Sampling and Analytical Conditions for the Health Hazard Assessment of Siliceous-Type Dusts. J. Leroux, A.B. Davey, and A. Paillard. Staub Reinhalt. Luft 32: 27-31, Dec. 1972. 6 refs.

An improved technique of quartz analysis by x-ray diffraction using silver filters is proposed following a critical evaluation of the sampler characteristics and of the analytical conditions which should be selected in order to give full significance to the generally accepted TLV formula related to respirable size dusts. Cases including urban air pollution where the method is applicable are discussed.

--Authors' summary

- 1529/73 An Insoluble Fibrogenic Factor in Macrophages from Guinea Pigs Exposed to Silica. T.A. Kilroe-Smith et al. Environm. Res. 8: 298-305, Sept. 1973. 17 refs.

The insoluble fibrogenic factor is a silica-associated factor which is a potent fibrogenic agent when injected subcutaneously into guinea pigs. It is also very stable to such acids as a mixture of acetic and trichloroacetic acids at pH 4. The factor is associated with the insoluble debris produced after sonic disintegration of the macrophages but the fibrogenicity cannot be attributed to the unreacted silica associated with this debris. Extraction of the lipids with chloroform:methanol (2:1) does not impair the fibrogenic properties of the macrophage residue.

--Authors' abstr.

Asbestos fibers are the central issue. Expert government witnesses included medical researchers generally regarded as among the most noted authorities on the relationships between asbestos exposure and cancer. They presented evidence that concentrations of asbestos-like materials are exceptionally high in Duluth water supplies and air near Silver Bay. A link between asbestos ingestion and cancer occurrence is not positive, though it's well indicated. Likely the nation's top asbestos effect expert, Dr. Irving Selikoff, said the existence of the fibers in Lake Superior water constitutes a distinct health hazard to the 100,000 residents of the city. He said necessary research to prove a link with cancer could not be done until the effects on residents are studied for the next 25 to 30 years, but he likened the situation to "playing Russian roulette".

RESERVE'S REBUTTAL

Reserve is now presenting rebuttal by its experts. They are arguing that the fibers found in the water are not the type of asbestos fibers suspected of relationship to cancer. They are also claiming that Reserve is not the sole fiber source--a U. of Wisconsin geologist testified that 27 streams flowing into Lake Superior carry asbestos-like cummingtonite mineral traces.

On the question of asbestos in the air, Reserve's attorneys pressed government witnesses on the issue of how much inhaling of asbestos fibers can be tolerated without danger to human health. They quizzed Dr. Selikoff, got admission there is no firm scientific evidence that airborne asbestos constitutes a health danger in the Silver Bay or Duluth areas.

PERSONALITIES

Both sides have made personal attacks. Reserve has charged Dr. Selikoff is a publicity seeker, a caller of news conferences to discuss views during scientific inquiries. Justice Dept. attorneys, meanwhile, have made somewhat similar attacks, eliciting admissions that some Reserve witnesses get fees for consulting--and often on work from companies with interests similar to Reserve's.

ECONOMIC ASPECTS

Still to come are the announcement of results from studies Dr. Selikoff and others are making at EPA request. If material from autopsies performed on Duluth residents comparison of these are planned against those of asbestos plant workers this may provide the best evidence yet whether ingestion of asbestos in water produces the same effects as does prolonged inhalation exposure. The judge has said he doesn't want the study results--it will take months--discussed publicly before they are presented to him.

Also ahead are economic arguments--consequences of a plant shutdown. The judge intends to explore these aspects carefully. Some dozen groups--chambers of commerce, etc., are intervenors for Reserve. Their view:

Closing the mine and plant at Silver Bay would be ruinous. Some figures: Average Silver Bay employment is 2933, earning \$46 million in annual pay. The company's annual production is 1.1 million tons of asbestos. The mine's annual production is 1.1 million tons of asbestos. The mine's annual production is 1.1 million tons of asbestos.

These economic arguments will be the final phase of the long case. The plaintiff states have petitioned to have Reserve's parent companies--American Steel, Ames Steel--joined as defendants in the economic phase.

COURT CASE TESTS NEW YORK'S WETLANDS LAW

Criminal charges are on file in New York State, a first effort with a wetlands protection law; it took effect Sept. 1. Two Long Island developers are accused of dredging a channel as part of a housing construction project. The state says dredge spoil was used to fill in some 500 ft. of beachfront in a 500-acre tract owned by one of the developers.

The law defines wetlands as land bordering on or beneath tidal waters. Until several hundred thousand acres of estimated wetlands are mapped, the law decrees a moratorium on any building or filling involving them.

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