January 31, 1974

Mr. Edward J. Slack
Vice President
Employee Relations

Subject: Response to Requests for Information Concerning the New Yorker Articles

In a memorandum to you, subject as above, dated December 12, 1973, I attached a draft of a review of health considerations that were involved in Unibestos. On January 28, 1974, I met with Dr. Daniel Braun and Dr. Paul Gross at the offices of the Industrial Health Foundation to review the statements in both the above-mentioned draft and the time sequence analysis relating to the IHF study of animals exposed to amosite dust that was partially funded by Pittsburgh Corning Corporation.

As a result of this meeting, Dr. Gross, who conducted the animal study, recommended changes in the statements that had been made in both drafts. These changes have been made in the attached drafts dated January 31, 1974, which I have provided for your information.

Lee B. Grant, M.D.
Medical Director

LBG:lc
Attachments
cc: J. O'Connor
Dr. M. Corn
Dr. Paul Gross
Dr. Daniel Braun

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TO WHOM IT MAY CONCERN:

Beginning in the October 29, 1973, issue of the New Yorker Magazine, a series of five weekly articles appeared. The series is entitled, "Annals of Industry - Casualties of the Work Place." The author is Paul Brodeur. The articles attempt to support the position stated by Anthony Mazzocchi, the Director of the Legislative Department of the Oil, Chemical, and Atomic Workers International Union, that industrial workers are the victims of a conspiracy by the "medical industrial complex" designed to suppress knowledge of occupational health hazards and to delay the passage and enforcement of laws to cope with them. The "medical industrial complex" is described as being composed of the occupational health personnel and consultants in industry and in government, both at the State and Federal levels, and the managers of industry. The articles depict the Tyler Plant of Pittsburgh Corning Corporation, in the words of a union official, as the "epitome of what is wrong with the way our country was dealing with the problem of industrial disease." In my opinion, this position is supported only by stretching the truth and in some cases altering or omitting the record.

As a professional in Occupational Medicine and as the Occupational Medicine Consultant to Pittsburgh Corning, I have a responsibility to both to

make available a portion of the story that has not been told in the articles. The articles allege that the Tyler Plant from its beginning has grossly exceeded the asbestos dust standards in most all of its operations. On the basis of results of surveys of airborne dust in the Tyler Plant prior to 1969, this was not true. There was evidence that excessive dust exposures occurred only at selected plant sites and that these excursions in airborne concentrations of dust were not consistent. The same surveys suggested permissible exposures (as calculated by then existing standards) at most sampling sites. It was only in 1969 when the Walsh-Healey Standards changed the entire concept of the standard from 5 MPPCF in a sample collected by impinger to 12 fibers/cc > 5 microns in length collected by filter that concentrations were deemed excessive throughout the plant. Late in 1971 the asbestos dust standard was further lowered by the OSHA Temporary Emergency Standard for Asbestos to 5 fibers/cc > 5 microns length.

The articles lead the reader to believe that the scientific world has known the biological response to all forms of asbestos since at least 1964. On the contrary, the effects of Amosite with respect to lung cancer and mesothelioma in man were not reported until September, 1972. Amosite is the type of asbestos used in "Unibestos", Pittsburgh Corning Corporation's asbestos-containing thermal pipe insulation. The facts are that in 1965 a study reported on miners exposed to amosite in the Transvaal Region of South Africa, where the amosite

used in Unibestos came from, showed no evidence of either lung cancer or mesothelioma being caused by exposure to amosite dust. This study suggested that amosite might be a safe type of asbestos that could be used in place of other asbestos that had been shown to be associated with malignancies. These facts may have had an influence in the greater demand for amosite that was experienced. Further facts are that it was in September, 1972, several months after Pittsburgh Corning Corporation had closed its Unibestos manufacturing operations that Selikoff published the first paper which suggested a relationship between amosite asbestos and malignancies. Selikoff states in this article that "there has been no evidence concerning whether the amosite variety is carcinogenic." A chronological description of recommendations and actions concerned with occupational health aspects of the Pittsburgh Corning Unibestos operation as well as the thinking that was involved will contribute to better understanding of the side of the story not told in the articles.

Pittsburgh Corning bought the Unibestos process from UNARCO in 1962 and took over the UNARCO plant in Tyler, Texas, employing about 60 employees. This plant had been operated by UNARCO since 1954, therefore, the employees had been working with asbestos for eight years. Pittsburgh Corning built a new Unibestos plant in Port Allegany in 1963, which employed about 50 employees. The Port Allegany Unibestos Plant was part of a larger operation where several

The Pittsburgh Corning Management was aware that asbestos dust exposure might result in asbestosis. Because of this, in 1963 they asked the Industrial Hygiene Foundation of Pittsburgh, Pennsylvania, to perform an industrial hygiene survey of the Tyler Plant. Professors Jack Cholak and Lawrence Shaffer of the Kettering Laboratory, University of Cincinnati, participated in this survey which indicated, with one or two exceptions, that the dust exposure was being adequately controlled according to existing standards. They made recommendations to control dust exposure in the one or two operations where additional control was necessary.

In 1964, shortly after Dr. Grant became the Medical Director of PPG Industries, Pittsburgh Corning Management, alarmed by an article in the lay press concerning mesothelioma being associated with asbestos dust exposure in the building trades, asked him what he knew about it and what significance it had for Pittsburgh Corning who used amosite asbestos. After becoming familiar with the small amount of information that was available on the subject, Dr. Grant advised Pittsburgh Corning that it did not appear to be known whether amosite asbestos would or would not produce malignancies in either animals or man.

During his first visit to both Pittsburgh Corning plants in 1965, Dr. Grant recommended that the chest x-rays that were done on the Unibestos

employees should be read by a physician who was Board Certified in Radiology. Also, he recommended that periodic industrial hygiene surveys should be accomplished.

In 1966, as part of his recognition of a potential hazard, Dr. Grant suggested two approaches to attempt to further clarify the health effects of amosite. In one approach, Dr. Grant advised Pittsburgh Corning that the USPHS was conducting a study to investigate the relationship between the types and degree of asbestos dust exposures in the asbestos industry in the United States and associated health effects / and because Pittsburgh Corning plants offered an opportunity to study the effects of amosite asbestos alone and not a mixed exposure to other types of asbestos, USPHS might be interested in including the Pittsburgh Corning plants in their study. Pittsburgh Corning asked Dr. Grant to inquire about including the Pittsburgh Corning plants in this USPHS study. The USPHS did include the Pittsburgh Corning plants in the study in March, 1967. Unfortunately, the USPHS performed only the industrial hygiene investigation but never implemented the medical investigation associated with the study.

In the other approach, Dr. Grant advised Pittsburgh Corning about a fibrous dust study in animals that was being contemplated by Dr. Paul Gross of the Industrial Hygiene Foundation at the request of the National Insulation Manufacturers Association and suggested that it might be possible to have amosite

asbestos included in this study. Some animals would have intra-tracheal (intra pulmonary injections with amosite dust and other animals would have intra-pleural (into the chest cavity) injections. This was planned to be a four-year study. Pittsburgh Corning accepted this approach to include exposure to amosite dust in the study. The animals injected intra-tracheally with amosite dust did not develop malignancies within 24 months.

However, in a previous investigation lung cancers have been produced in rats as early as 17 months after asbestos exposure. At about that time (in 1969) an epidemic of pneumonia decimated the animals to a degree which forced Dr. Gross to replaced the dead animals with new ones in order to obtain meaningful results. In June, 1971, these new animals were transferred to the Medical University of South Carolina under the general care of Dr. Garlick, D.V.M. About six months after this transfer, an epidemic of pneumonia caused by mycoplasma killed most of the animals injected intra-tracheally with amosite. The result of this high mortality among these animals was that no conclusions could be drawn. Although no lung cancers had developed in any of these animals, the animals injected intrapleurally suffered a lower mortality and definitive conclusions were possible. These conclusions were incorporated in a report published in October, 1973.

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Also in 1966, Dr. Grant investigated the possibility of the Texas State Chest Hospital, located near the Tyler Plant, performing medical examinations on Tyler employees who had worked five years or more in the plant, to include a detailed respiratory history, medical examination, chest x-ray examination, and pulmonary function tests, including FVC, $FEV_{1.0}$, and carbon monoxide diffusion. Dr. Grant advised Pittsburgh Corning that the Hospital would do these examinations. Because the USPHS study would include basically these same tests which the Texas State Hospital would perform, Pittsburgh Corning suggested that duplication of effort be avoided by letting the USPHS perform the study and accepting their results. Unfortunately, despite numerous requests by Dr. Grant, the USPHS never performed the medical studies. Pittsburgh Corning sponsored these studies at Texas State Chest Hospital in 1971.

After receiving the results of the USPHS Dust Survey in 1968, Dr. Grant advised Pittsburgh Corning Management of the significance of these asbestos dust concentrations in terms of possible effects on the health of employees. He advised

Pittsburgh Corning to ask Dr. Morton Corn of the University of Pittsburgh to assist them with the design of an adequate ventilation system to control airborne dust. In 1968, Dr. Corn assisted in the design of a ventilation system at Port Allegany and in 1969 a similar system was designed for the Tyler Plant. The system, with some modifications, was installed in Port Allegany in 1970. A new ventilation system was not installed at Tyler prior to closure of the plant.

In 1969, with the lowering of the asbestos dust standard under Walsh-Healey to 12 fibers per cubic centimeter, Dr. Grant advised that procedures for surveillance and protection of Pittsburgh Corning employees exposed to amosite dust should be reviewed.

As a result of his visit to Tyler in March, 1970, Dr. Grant recommended that further time should not be spent waiting for USPHS to do the medical portion of their asbestos study, particularly in view of the fact that the 1969 chest x-rays of a few of the employees showed findings for which follow-up medical (continued on next page)

examinations were indicated. He recommended that the Texas State Hospital be asked to do the examinations in accordance with the agreed protocol in 1967. Dr. Hurst of the Texas State Chest Hospital completed the examination of all of the Tyler employees in August of 1971.

It became apparent to Dr. Grant in early 1969 that the asbestos dust standard would be further lowered, which raised the question in his mind as to whether Unibestos could be installed or removed by the insulation worker without exceeding the asbestos dust standard. In January, 1969, he held a briefing with Pittsburgh Corning Management alerting them to this potential problem. Dr. Grant recommended to Pittsburgh Corning that a study be done at UC Berkeley by a thoroughly competent group of investigators, including Doctors Irving Tabershaw, Clark Cooper, Bernard Tebbens, and Leroy Balzer, to determine whether Unibestos or three other competitors' products could be used without exceeding the asbestos standard. The study was initiated in 1969 and showed that none of asbestos-containing thermal pipe insulation products could be used without exceeding the asbestos dust standard. Pittsburgh Corning intensified their efforts to develop an asbestos-free product. Unibest was a result of this effort in which mineral wool replaced the asbestos. Unibest was also tested by UC Berkeley in 1970 and it was found that while it didn't contain asbestos, it produced dust levels above the nuisance dust standard of 10 mg. per cubic meter

of air. The findings of both of these studies were reported at an International Health and Safety Meeting in Helsinki in 1971, and later published in the scientific literature..

Other efforts directed at protecting the health of users of Unibestos included the use of a warning label on product containers advising, "This product contains asbestos fiber. If dust is created when this product is handled, avoid breathing the dust. If adequate ventilation control is not possible, wear respirator approved by U.S. Bureau of Mines";

providing the customer with a pamphlet prepared by Dr. Grant and others on the National Insulation Manufacturers Health and Safety Committee entitled "Recommended Health Safety Practices for Handling and Applying Thermal Insulation Products Containing Asbestos",

and providing health and safety programs at the Regional Meetings of the Insulation Contractors by members of the NIMA Health and Safety Committee.

Unibest development was not successful, so in September, 1971, Pittsburgh Corning Management decided to stop Unibestos manufacturing operations in early 1972 at both locations. This was accomplished at Tyler in February, 1972, ten years after buying the process from UNARCO.

The Texas State Chest Hospital Medical Study of the Tyler employees reported in January, 1972, diagnosed seven (7) employees as having probable early asbestosis. Four of these employees had worked at the Tyler plant for

ten years and one each employed for 11, 15, and 17 years. These employees will continue to be followed by Dr. Hurst at the Texas State Chest Hospital.

NIOSH performed a medical study of the Port Allegany employees and found no asbestos-related disease. It should be remembered that this plant had been in operation about nine years.

LBG/

DRAFT 31/74

TIME SEQUENCE ANALYSIS OF THE UNIBESTOS HEALTH CONSIDERATIONS

YEAR	PITTSBURGH CORNING	DR. L. B. GRANT	DR. M. CORN	ASBESTOS DUST STANDARD	INDUSTRIAL HEALTH FOUNDATION	USPH NIOSH	TEXAS STATE CHEST HOSPITAL	UC BERKELEY	LITERATURE ON MALIGNANCIES ASSOCIATED WITH ASBESTOS
1962	Purchased Unibestos process from UNARCO including Tyler Plant in operation since 1954 (amosite containing thermal pipe insulation)			ACGIH TLV 5 MPPCF					Although asbestosis known for many years, in England, Doll in 1955 suggested an association of lung cancer with asbestosis and Wagner in 1960 claimed a relationship between asbestos exposure & mesothelioma but exposures were to mixed types of asbestos.
1963	1. Built Unibestos plant at Port Allegany 2. Asks IHF to survey Tyler Plant			ACGIH TLV 5 MPPCF	Surveys Tyler Plant - recommends controls to reduce dust	USPH initiate asbestos industry study			No Change.
1964	Asks Dr. Grant about mesothelioma	Becomes Occupational Medical Consultant to P-C		ACGIH TLV 5 MPPCF					1. In the U.S. Selikoff reported malignancies in the building trades insulation workers who were exposed to asbestos. Again exposures were to mixed types of asbestos. 2. Gilson raised at least two questions be answered. First, is the type of asbestos an important factor in the risk of malignancy? Second, is there a risk of malignancy in the absence of asbestosis?
1965	Asks Dr. Grant to visit their plants	Visits P-C plants - recommends periodic industrial hygiene surveys and chest x-rays to be read by Board Certified Radiologist (1)		ACGIH TLV 5 MPPCF					1. Smithers, Newhouse and Elmes provide further evidence. 2. Sluis-Cremer does not find malignancies associated with pure amosite exposures in miners.
1966	1. Asks Destefano to survey Tyler plant. 2. Approves Dr. Grant's USPHS recommendation 3. Approves Dr. Grant's IHF	1. Recommends Tyler plant industrial hygiene survey by Destefano. 2. Recommends USPHS include Unibestos Plants in industry study. 3. Recommends IHF do		ACGIH TLV 5 MPPCF	Initiates 4-yr. animal study for P-C on animals intra-tracheal and intra-pleural injected with amosite				No Change.

TIME SEQUENCE ANALYSIS OF T' NIBESTOS HEALTH CONSIDERATIONS

YEAR	PITTSBURGH CORNING	DR. L. B. GRANT	DR. M. CORN	ASBESTOS DUST STANDARD	INDUSTRIAL HEALTH FOUNDATION	USPH NIOSH	TEXAS STATE CHEST HOSPITAL	UC BERKELEY	LITERATURE ON MALIGNANCIES ASSOCIATED WITH ASBESTOS
1966 (4)	4. Approves Dr. Grant's recommendation for expanded medical examination of Tyler employees by Texas State Chest Hospital	4. Recommends expanded medical examination for Tyler employees by Texas State Chest Hospital					Prepares protocol for expanded medical examination for Tyler employees		
1967	1. Recommends deferring medical examinations by Texas State Chest Hospital on basis that USPHS may do same type of examination (9)	1. Advises Texas State Hospital of decision to defer medical examinations 2. Queries USPHS on status of medical portion of their study for P-C employees.		ACGIH TLV 5 MPPCF	Continues amosite study	USPHS performs industrial hygiene survey at Tyler & Port Allegany as part of their asbestos industry study	Obtains approval to do medical examinations from higher authorities.		Borow provides further evidence but pure amosite exposure not involved.
1968	1. Asks Dr. M. Corn to provide assistance recommended by Dr. Grant at Port Allegany plant.	1. Advises P-C of significance of USPHS findings. 2. Recommends Dr. M. Corn to assist in designing (3) ventilation controls for hazardous dust exposures at both Tyler & Pt. Allegany. 3. Queries [illegible] on status of medical portion of their study	Performs (2) & assists in designing of (4) ventilation controls at Pt. Allegany	ACGIH TLV 5 MPPCF	Continues amosite study	USPHS provides P-C with results of industrial hygiene survey			Selikoff, Anspach, Hagerstrand and Ashcroft provides further evidence but pure amosite exposure not involved.

YEAR	PITTSBURGH CORNING	DR. L. B. GRANT	DR. M. CORN	ASBESTOS DUST STANDARD	INDUSTRIAL HEALTH FOUNDATION	USPH NIOSH	TEXAS STATE CHEST HOSPITAL	UC BERKELEY	LITERATURE ON MALIGNANCIES ASSOCIATED WITH ASBESTOS
1969	1. Asks Dr. M. Corn to provide assistance recommended by Dr. Grant at Tyler. 2. Asks UCBerkeley perform study on asbestos-containing thermal pipe insulation. 3. Initiates R&D effort toward removing asbestos from Unibestos	1. Briefing of P-C on hazards associated with manufacture and use of (16) asbestos-containing thermal pipe insulations. Recommends either elimination of asbestos from Unibestos or controls necessary to minimize hazards. 2. Recommends study by UC Berkeley of dust exposure from use of asbestos-containing thermal pipe insulations. 3. Advises P-C on significance to their plants of new Walsh-Healey Asbestos Standard. Recommends dust control, employee education and medical examinations.	1. Performs industrial hygiene survey and assists in design of ventilation controls at Tyler. 2. Briefing of P-C on hazards of (17) asbestos dust exposure. (18)	Walsh-Healey Standard 12 fibers/cubic centimeter > 5 microns in length	Advises that the injected animals had died as a result of an epidemic of pneumonia and a new series of animals injected as the previous series replaced the dead animals	Department of Labor performs inspection at Tyler and issues non-compliance citations.		Initiates study for P-C of dust exposure from use of asbestos-containing thermal pipe insulation.	Wagner produces mesotheliomas in rats by putting amosite into the pleural cavity.

YEAR	PITTSBURGH CORNING	DR. L. B. GRANT	DR. M. CORN	ASBESTOS DUST STANDARD	INDUSTRIAL HEALTH FOUNDATION	USPH NIOSH	TEXAS STATE CHEST HOSPITAL	UC BERKELEY	LITERATURE - MALIGNANCIES ASSOCIATED WITH ASBESTOS
970	1. Asks Dr. Grant to visit Tyler 2. Asks UC Berkeley to perform study on Unibest, an asbestos-free thermal pipe insulation. 3. Installed Corn designed ventilation system at Port Allegany. 4. Asks Dr. M. Corn to evaluate new ventilation system at Pt. Allegany. 5. Initiates Unibest production at Pt. Allegany. 6. Requests variance from Walsh-Healey Asbestos Dust Standard.	1. Visits Tyler - recommends ventilation controls, medical (10) examinations by Texas State Chest Hospital and health education of employees. Advises 69 chest x-rays of employees suggests need for further follow-up. 2. Recommends UC Berkeley do identical testing of Unibest an asbestos-free thermal pipe insulation developed by P-C R&D.	Evaluated new ventilation system at Pt. Allegany.	OSHA Health Standard 12 fibers/cc.	Study Continued	USPHS performs industrial hygiene survey at Tyler & Pt. Allegany - finds dust levels above asbestos dust standard. (5)		1. Reports on study indicating that none of materials tested (13) could be used without exceeding the asbestos dust standard. 2. Initiates study on Unibest for P-C.	No Change.
71	1. Asks Texas State Chest Hospital to perform medical examinations of Tyler employees 2. Asks Dr. Grant to perform employee education at Tyler and Pt. Allegany. 3. Requests variance	1. Recommends to NIOSH that Texas State Chest Hospital study of Tyler employees be co-ordinated with NIOSH study. 2. Performed health education of employees at P-C plants. (6)		OSHA Temporary Emergency (8) Standard for Asbestos 5fibers/cc.	Study Continued	1. NIOSH advises they will do an industrial(7) hygiene & medical study at Tyler & Pt. Allegany. 2. NIOSH performed study. 3. NIOSH advised POW of the	Performs expanded medical examination for Tyler employees.	1. Reports on Unibest study.(14) 2. Presents findings of both studies at the International Symposium on Safety & Health in Shipbuilding and Repairing in Helsinki. 3. Submitted both studies for	Wagner states position not clear with respect to malignancies from amosite since only one mesothelioma found in Transvaal study.

	PITTSBURGH CORNING	DR. L.B. GRANT	DR. M. CORN	ASBESTOS DUST STANDARD	INDUSTRIAL HEALTH FOUNDATION	USPH NIOSH	TEXAS STATE CHEST HOSPITAL	UC BERKELEY	LITERATURE ON MALIGNANCIES ASSOCIATED WITH ASBESTOS
(Contd)	4. Encouraged and supported UC trip to Helsinki to report their findings at an international meeting. 5. Made decision to stop the manufacture of Unibestos and not to manufacture the asbestos-free Unibest at this time.	3. Met with NIOSH to discuss misunderstanding that had developed (11) between he and Dr. Johnson.				4. Met with Dr. Grant at his request. 5. At NIOSH's request, Texas State Health Department to investigate Tyler (15)			
72	1. February, 1972, stopped manufacturing Unibestos. 2. Agreed to support follow-up studies recommended by Texas State Chest Hospital.	1. Reviewed final report of Texas State Hospital on Tyler employees with NIOSH and (12) OCAW - 7 employees had been diagnosed as early asbestosis. 2. Reviewed final report of NIOSH medical study of Tyler employees which was basically the same as above.	OSHA Permanent Standard for Asbestos 5 fibers/cc.	Advises that a new epidemic of mycoplasma pneumonia killed most of the intra-tracheally injected animals. These animals were not replaced. However, no malignancies, were found in any of the animals.		1. NIOSH met with Dr. Grant and Texas State Chest Hospital to review the results of latter's medical examination program. 2. Provided a report of the NIOSH Tyler study to P-C. 3. Provided employee's results to employee's personal physician. NOTE: The final NIOSH report on the Port Allegany medical study has not been received as of November, 1973)	1. Presented results of Tyler employee medical examinations to Dr. Grant, NIOSH, and OCAW. 2. Performed follow-up counseling for employees with positive medical findings. 3. Provided employee's results to employee's personal physician. 4. Recommended that he provide follow-up examinations of some employees.		Selikoff (September, 1972) reported amosite exposure caused malignancies.