PLAINTIFF'S EXHIBIT
UC-3908

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UC 149-2

UNION CARBIDE

INTERNAL CORRESPONDENCE

METALS DIVISION

• 4625 ROYAL AVE., P. O. BOX 579, NIAGARA FALLS, NEW YORK 14302

To (Name) Mr. W. C. Thurber
Division UCC - Metals Division
Location 38th Floor
270 Park Avenue
New York, NY 10017

Copy to Messrs. R. E. Byrne, Jr.
D. M. Mintzes
J. L. Myers
T. P. Norris
R. F. X. Fusaro
File

Date April 14, 1976

Originating Dept. "Calidria" Asbestos

Answering letter date

Subject State of Oregon - Occupational Health Regulations for Asbestos

In accordance with your request, the above noted state regulation has been reviewed. A copy is attached. The AIA/NA informs me that the Oregon regulations are OSHA approved and enforcement is being done by the state.

The Oregon regulation follows the June 7, 1972 Federal OSHA asbestos regulations quite closely with an important exception; i.e., in a number of situations where the Federal rules trigger action if the allowable limits may be or are exceeded, the Oregon rules go into effect if any level of airborne asbestos is present. A respirator is required "wherever asbestos releasing materials are handled".

Specifically, the main differences are as follows:

1. Tools that release fiber must be provided with local exhaust ventilation. There is no "over the allowable limits requirement" as in the Federal Standards.

2. Insofar as is practical wet methods are to be used to prevent all emissions, not just those over the allowable limits.

3. Respirators are required wherever asbestos dust is released, regardless of how low the level.

4. Type "C" supplied air respirators appear to be required for the removal of asbestos containing materials with hand or power operated tools, even when the tools are fitted with local exhaust ventilation.

5. Special clothing and change rooms are required when concentrations "are reasonably expected to be" over the prescribed limit. The Federal Regulations require this only when the limits are exceeded.

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6. Caution signs are required where fibers may reasonably be expected to be released, regardless of the expected level. Federal rules require this "where airborne concentrations of asbestos fibers may be in excess of the exposure limits..."

7. Caution labels are required in all cases, even for products with bound asbestos, if any concentration of airborne fibers will be released not just not just where concentrations over the allowable limits may occur in any reasonably foreseeable use.

8. "Housekeeping" requires that all surfaces be kept clear of accumulations of asbestos fiber. The "...if their dispersion would create an airborne concentration in excess of the exposure limits..." wording from the Federal regulations has been deleted.

9. In "Waste Disposal" the words "which may produce....airborne concentrations in excess of the exposure limits... have been deleted from the Federal Standard. Sealed, impermeable bags are required for all waste disposal that will produce any concentrations of airborne asbestos fiber.

J. F. Meyers
for H. B. Rhodes

HBR:dal
Attach.

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to serve you . . .

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Please feel free to call on us any time we might be of further service.

Oregon State Board of Health
P. O. Box 231
Portland, Oregon

OCCUPATIONAL
HEALTH SECTION
(503) 229-5010

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Since E_n is less than unity (1), the exposure combination is within acceptable limits.

(e) To achieve compliance with paragraph (a) through (d) of this section, administrative or engineering controls must first be determined and implemented whenever feasible. When such controls are not feasible to achieve full compliance, protective equipment or any other protective measures shall be used to keep the exposure of employees to air contaminants within the limits prescribed in this section. Any equipment and/or technical measures used for this purpose must be approved for each particular use by a competent industrial hygienist or other technically qualified person. Whenever respirators are used, their use shall comply with

(f) Biological Monitoring

(1) If employees work in environments which contain organic phosphorus compounds, lead or lead compounds, or other contaminants at concentrations which may be a hazard to health, appropriate biological and physical examinations as approved by rule of the Occupational Health Section shall be carried out. Records of such tests shall be available to the Occupational Health Section upon request.

(2) Secific requirements for biological monitoring are included in 22-017(B)--Asbestos, 22-017(D)--Carcinogens, 22-017(E)--Vinyl Chloride, 22-018(A)(d)--Open Surface Tanks, 22-019(B)--Audiometric Examinations, and 22-020--Ionizing Radiation.

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22-017(B)—— ASBESTOS

(a) Definitions.

For the purpose of this section.

(1) "Asbestos" includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

(2) "Asbestos fibers" means asbestos fibers longer than 5 micrometers.

(b) Permissible exposure to airborne concentrations of asbestos fibers.

(1) Standard effective July 1, 1974. The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed five fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(2) Standard effective July 1, 1976. The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed two fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(3) Ceiling concentration. No employee shall be exposed at any time to airborne concentrations of asbestos fibers in excess of 10 fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

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(c) Methods of compliance.

(1) Engineering methods.

(i) Engineering controls. Engineering controls, such as, but not limited to, isolation, enclosure, exhaust ventilation, and dust collection, shall be used to meet the exposure limits prescribed in paragraph (b) of this section.

(ii) Local exhaust ventilation.

(a) Local exhaust ventilation and dust collection systems shall be designed, constructed, installed, and maintained in accordance with the American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems, ANSI Z9.2-1971, which is incorporated by reference herein, or the ACGIH Industrial Ventilation Manual, 13th Edition, 1974.

(b) Contact Consultation Section, Workmen's Compensation Board and/or Occupational Health Section for information or access to ANSI Z9.2-1971.

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ii) Particular tools. All hand-operated and power-crated tools, such as, but not limited to, saws, scorers, rasive wheels and drills, which may produce or release beatos fibers under normal or frequent working conditions, or produce or release asbestos fibers in excess of e exposure limits prescribed in paragraph (b) of this ction, shall be provided with local exhaust ventilation stems in accordance with subdivision (ii) of this paragraph.

(2) Work practices.

(i) Wet methods. Insofar as practicable, asbestos shall be handled, mixed, applied, removed, cut, scored, or otherwise worked in a wet state, and such wetting shall be sufficient to prevent the emission of airborne fibers in excess of the exposure limits prescribed in para-

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(ii) Particular products and operations. No asbestos cement, mortar, coating, grout, plaster, or similar material containing asbestos shall be removed from bags, cartons, or other containers in which they are shipped, without being either wetted, or enclosed, or ventilated, and these procedures shall prevent effectively the release of airborne asbestos fibers in excess of the limits prescribed in paragraph (b) of this section.

(iii) Spraying, demolition, or removal. Employees engaged in the spraying of asbestos, the removal, or demolition of pipes, structures, or equipment covered or insulated with asbestos, and in the removal or demolition of asbestos insulation or coverings shall be provided with respiratory equipment in accordance with paragraph (d)(2)(iii) of this section and with special clothing in accordance with paragraph (d)(3) of this section.

(d) Personal protective equipment.

(1) Compliance with the exposure limits prescribed by paragraph (b) of this section may not be achieved by the use of respirators or shift rotation of employees, except:

(i) During the time period necessary to install the engineering controls and to institute the work practices required by paragraph (c) of this section;

(ii) In work situations in which the methods prescribed in paragraph (c) of this section are either technically not feasible or feasible to an extent insufficient to reduce the airborne concentrations of asbestos fibers below the limits prescribed by paragraph (b) of this section; or

(iii) In emergencies.

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(iv) Where both respirators and personnel rotation are allowed by subdivisions (i), (ii), or (iii) of this subparagraph, and both are practicable, personnel rotation shall be preferred and used.

(2) Where a respirator is permitted by subparagraph (1) of this paragraph, it shall be selected from among those approved by ~~the Bureau of Mines, Department of the Interior~~ or the National Institute for Occupational Safety and Health, Department of Health, Education, and Welfare, under the provisions of 30 CFR Part 11 (37 F.R. 6244, Mar. 25, 1972), and shall be used in accordance with subdivisions (i), (ii), (iii), and (iv) of this subparagraph.

Note: NIOSH has approved for a limited time the use certain respiratory protective equipment which in the past was proved by the U.S. Bureau of Mines. The length of the approval dependant upon the type of respirator protective equipment involved. Questions about the use of such equipment should be referred to the Occupational Health Section.

(i) Air purifying respirators. A reusable or single use air purifying respirator, or a respirator described in subdivision (ii) or (iii) of this subphragraph, shall be used wherever asbestos releasing materials are handled, or

to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in paragraph (b) of this section, when the ceiling or the 8-hour time-weighted average airborne concentrations of asbestos fibers are reasonably expected to exceed no more than 10 times those limits.

(ii) Powered air purifying respirators. A full facepiece powered air purifying respirator, or a powered air purifying respirator, or a respirator described in subdivision (iii) of this subparagraph, shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in paragraph (b) of this section, when the ceiling or the 8-hour time-weighted average airborne concentrations of asbestos fibers are reasonably expected to exceed 10 times, but not 100 times, those limits.

(iii) Type "C" supplied-air respirators, continuous flow or pressure-demand class. A type "C" continuous flow or pressure-demand, supplied-air respirator shall be used during spraying, demolition, or the removal of asbestos containing materials, as described in 22-017(B)(c)(2)(iii), or to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in paragraph (b) of this section, when the ceiling or the 8-hour time-weighted average airborne concentrations of asbestos fibers are reasonably expected to exceed 100 times those limits.

(iv) Establishment of a respirator program.

(a) The employer shall establish a respirator program in accordance with the requirements of the American National Standard Practices for Respiratory Protection, ANSI Z88.2-1969, which is incorporated by reference herein. The respirator program shall be in accord with 22-069.

(b) Contact Consultation Section, Workmen's Compensation Board and/or Occupational Health Section for information or access to ANSI Z88.2-1969.

(c) No employee shall be assigned to tasks requiring the use of respirators if, based upon his most recent examination, an examining physician determines that the employee will be unable to function normally wearing a respirator, or that the safety or health of the employee or other employees will be impaired by his use of a respirator. Such employee shall be rotated to another job or given the opportunity to transfer to a different position whose duties he is able to perform with the

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cal area and with the same seniority, status, and rate of pay he had just prior to such transfer, if such a different position is available.

pecial clothing: The employer shall pro-, and require the use of, special clothing, n as coveralls or similar whole body ning, head coverings, gloves, and foot rings for any employee exposed to air-ne concentrations of asbestos fibers, h are reasonably expected to exceed the ceiling level prescribed in graph (b) of this section.

ange rooms:

At any fixed place of employment ch is reasonably expected to be posed to airborne concentrations of estos fibers in excess of the exposure its prescribed in paragraph (b) of this tion, the employer shall provide nge rooms for employees working reg-rly at the place.

Clothes lockers: The employer shall vide two separate lockers or con-ners for each employee, so separated isolated as to prevent contamination he employee's street clothes from his rk clothes.

Laundering:

i) Laundering of asbestos con-minated clothing shall be done so as prevent or minimize the release of airborne sbestos fibers, and in no case shall the release f asbestos fibers be in excess of the exposure imits prescribed in paragraph (b) of this section.

ii) Any employer who gives asbestos-ontaminated clothing to another per-on for laundering shall inform such erson of the requirement in (a) of this ubdivision to effectively prevent

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(c) Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable containers, and labeled in accordance with paragraph (g) of this section.

(e) Method of measurement.

All determinations of airborne concentrations of asbestos fibers shall be made by the membrane filter method at 400–450 × (magnification) (4 millimeter objective) with phase contrast illumination.

(f) Monitoring.

(1) Initial determinations. Within 6 months of the publication of this section, every employer shall cause every place of employment where asbestos fibers are released to be monitored in such a way as to determine whether every employee's exposure to asbestos fibers is below the limits prescribed in paragraph (b) of this section. If the limits are exceeded, the employer shall immediately undertake a compliance program in accordance with paragraph (c) of this section.

(2) Personal monitoring.

(i) Samples shall be collected from within the breathing zone of the employees, on membrane filters of 0.8 micrometer porosity mounted in an open-face filter holder. Samples shall be taken for the determination of the 8-hour time-weighted average airborne concentrations and of the ceiling concentrations of asbestos fibers.

(ii) Sampling frequency and patterns. After the initial determinations required by subparagraph (1) of this paragraph, samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of employees. In no case shall the sampling be done at

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intervals greater then 6 months for employees whose exposure to asbestos may reasonably be foreseen to exceed the limits prescribed by paragraph (b) of this section.

(3) Environmental monitoring.

(i) Samples shall be collected from areas of a work environment which are representative of the airborne concentrations of asbestos fibers which may reach the breathing zone of employees. Samples shall be collected on a membrane filter of 0.8 micrometer porosity mounted in an open-face filter holder. Samples shall be taken for the determination of the 8-hour time-weighted average airborne concentrations and of the ceiling concentrations of asbestos fibers.

(ii) Sampling frequency and patterns. After the initial determinations required by subparagraph (1) of this paragraph, samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of the employees. In no case shall sampling be at intervals greater than 6 months for employees whose exposures to asbestos may reasonably be foreseen to exceed the exposure limits prescribed in paragraph (b) of this section.

) Employee observation of monitoring. Affected nployees, or their representatives, shall e given a reasonable opportunity to bserve any monitoring required by this aragraph and shall have access to the cords thereof.

Caution signs and labels.

Caution signs.

(i) Posting. Caution signs shall be provided and displayed at each location where airborne concentrations of asbestos fibers are reasonably expected to be released, or where airborne concentrations of asbestos fibers may be in excess of the exposure limits prescribed in paragraph (b) of this section.
Signs shall be posted at such a distance from such a location so that an employee may read the signs and take necessary protective steps before entering the area marked by the signs. Signs shall be posted at all approaches to areas containing airborne asbestos fibers.

(ii) Sign specifications. The warning signs required by subdivision (i) of this subparagraph shall conform to the requirements of 20" x 14" vertical format signs specified in 22-015 and to this subdivision. The signs shall display the following legend in the lower panel, with letter sizes and styles of a visibility at least equal to that specified in this subdivision.

Legend	*Notation*
Asbestos	1" Sans Serif, Gothic or Block.
Dust Hazard	1" Sans Serif, Gothic or Block.
Avoid Breathing Dust	¼" Gothic.
Wear Assigned Protective Equipment.	¼" Gothic.
Do Not Remain In Area Unless Your Work Requires It.	¼" Gothic.
Breathing Asbestos Dust May Be Hazardous To Your Health.	14 point Gothic.

Spacing between lines shall be at least equal to the height of the upper of any two lines.

(i) Labeling. Caution labels shall be affixed to all raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to their containers, except that no label is required where asbestos fibers have been modified by a bonding agent, coating, binder, or other material so that during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentrations of asbestos fibers will be released.

(ii) Label specifications. The caution labels required by subdivision (i) of this subparagraph shall be printed in letters of sufficient size and contrast as to be readily visible and legible. The label shall state:

CAUTION

Contains Asbestos Fibers
Avoid Creating Dust
Breathing Asbestos Dust May Cause
Serious Bodily Harm

(h) Housekeeping.

(1) Cleaning. All external surfaces in any place of employment shall be maintained free of accumulations of asbestos fibers.

(2) Waste disposal. Asbestos waste, scrap, debris, bags, containers, equipment, and asbestos-contaminated clothing, consigned for disposal, which may produce in any reasonably foreseeable use, handling, storage, processing, disposal, or transportation airborne concentrations of asbestos fibers shall be collected and disposed of in sealed impermeable bags, or other closed, impermeable containers.

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22-017(B)

(i) Recordkeeping.

(1) Exposure records. Every employer shall maintain records of any personal or environmental monitoring required by this section. Records shall be maintained for a period of at least 3 years and shall be made available upon request to the Director, Occupational Health Section, or to his authorized representative.

(2) Employee access. Every employee and former employee shall have reasonable access to any record required to be maintained by subparagraph (1) of this paragraph, which indicates the employee's own exposure to asbestos fibers.

(3) Employee notification. Any employee found to have been exposed at any time to airborne concentrations of asbestos fibers in excess of the limits prescribed in paragraph (b) of this section shall be notified in writing of the exposure as soon as practicable but not later than 5 days of the finding. The employee shall also be timely notified of the corrective action being taken.

(j) Medical examinations.

(1) General. The employer shall provide or make available at his cost, medical examinations relative to exposure to asbestos required by this paragraph.

(2) Preplacement. The employer shall provide or make available to each of his employees, within 30 calendar days following his first employment in an occupation exposed to airborne concentrations of asbestos fibers, a comprehensive medical examination, which shall include, as a minimum, a chest roentgenogram (posterior-anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second ($FEV_{1.0}$).

22-017(B)(J)(2)

(3) Annual examinations. On or before July 1, 1974, and at least annually thereafter, every employer shall provide, or make available, comprehensive medical examinations to each of his employees engaged in occupations exposed to airborne concentrations of asbestos fibers. Such annual examination shall include, as a minimum, a chest roentgenogram (posterior-anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second ($FEV_{1.0}$).

(4) Termination of employment. The employer shall provide, or make available, within 30 calendar days before or after the termination of employment of any employee engaged in an occupation exposed to airborne concentrations of asbestos fibers, a comprehensive medical examination which shall include, as a minimum, a chest roentgenogram (posterior-anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second ($FEV_{1.0}$).

(5) Recent examinations. No medical examination is required of any employee, if adequate records show that the employee has been examined in accordance with this paragraph within the past 1-year period.

(6) Medical records.

(i) Maintenance. Employers of employees examined pursuant to this paragraph shall cause to be maintained complete and accurate records of all such medical examinations. Records shall be retained by employers for at least 20 years.

22-017(B)(J)(6)

(ii) Access. The contents of the records of the medical examinations required by this paragraph shall be made available, for inspection and copying, to the Director, Occupational Health Section, or to his authorized representative, to authorized physicians and medical consultants of either of them, and, upon the request of an employee or former employee, to his physician. Any physician who conducts a medical examination required by this paragraph shall furnish to the employer of the examined employee all the information specifically required by this paragraph, and any other medical information related to occupational exposure to asbestos fibers.

22-017(C)— COAL TAR PITCH VOLATILES; INTERPRETATION OF TERM

As used in 22-017(A) (Table G-1), coal tar pitch volatiles include the fused polycyclic hydrocarbons which volatilize from the distillation residues of coal, petroleum, wood, and other organic matter.

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