PLAINTIFF'S EXHIBIT

UC-1701

GUIDANCE FOR COMPLIANCE WITH EPA ASBESTOS REGULATION

REGULATION AND APPLICABILITY

Regulation - 40 CFR 61, Subparts A and B

Applicability - To the demolition of structures or renovation of equipment and piping that involves removal of more than 160 square feet or 260 lineal feet of insulation containing more than one percent asbestos by weight, either in a single project or a predictable series of projects over the course of one year that are additive to this amount.

OVERALL REQUIREMENTS OF REGULATION

Practices - Comply with defined removal and disposal practices.

Notification - Provide timely notification of EPA.

KEY REQUIREMENTS - REMOVAL PRACTICES

(1) Insulation shall be removed prior to demolition where the demolition would likely damage and expose insulation.

(2) Insulation must be wetted prior to removal and kept wet until disposal is accomplished.

(3) Insulation on pipe or equipment which is to be removed in sections must have exposed surfaces wetted and kept wet during dismantling.

(4) Stripped insulation must not be dropped or thrown to the ground. Dust tight containers or chutes must be used for lowering insulation removed that is more than 50 feet above ground level.

KEY REQUIREMENTS - DISPOSAL PRACTICES

(1) No visible emissions of insulation are allowed in transport to the disposal site.

(2) No visible emissions may result from disposal operations.

(3) For disposal areas one of the following requirements must be met:

  (a) A six-inch earth cover is provided over disposed insulation within 24 hours.

  (b) An effective resinous or petroleum-based dust suppression agent is applied at the end of each operating day.

  (c) A natural barrier adequately deters public access to the site.

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(d) The area is fenced and (20 x 14 inch) warning signs are posted at least every 330 feet. [See Attachment 1, § 61.25]

REQUIREMENTS - EPA NOTIFICATION

Timing - EPA and applicable States are to be notified either:

(a) Annually, or
(b) 10 days prior to planned demolition or renovation, or
(c) As soon as possible after beginning an unplanned (emergency) removal project.

The above notification requirement applies whenever the total amount for the project or time period exceeds 160 square feet of equipment or 260 lineal feet of pipe insulation.

Office to be Notified - [See Attachment 1, § 61.04]

Federal: Director, Enforcement Division
Environmental Protection Agency
(Regional Office City Address)

State: (Applicable only in the following C&P states)
California (Sacramento County)
(Bay Area)

Georgia
New York
North Carolina

Suggested Text of Notification Letter

The attached notification relative to the demolition and/or renovation of facilities containing friable asbestos insulation is provided per requirements of 40 CFR 61, Subpart B, Section 61.22 (d).

Please contact the writer if there are questions concerning information contained in the notification.

Signed _____

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Form of Notification [See also Attachment 1 - § 61.22]

NOTICE OF INTENT TO DEMOLISH OR RENOVATE STRUCTURES, EQUIPMENT OR PIPING INVOLVING FRIABLE ASBESTOS INSULATION

(1) Name of Owner Union Carbide Corporation

(2) Address of Owner (Location Street Address)

(3) Description of Facility Various buildings, equipment and piping used in manufacture and distribution of chemicals and plastics. An estimated xx square feet and yy lineal feet of insulation to be removed.

(4) Address of Site (Same as item 2 above)

(5) Scheduled Start and Completion Dates (Either calendar year or other specified dates)

(6) Nature of planned demolition or renovation and methods employed Demolition of obsolete facilities and renovation of existing facilities.

(7) Procedures employed Insulation wetted before removal, lowered to ground, disposed in a site which is (fenced or protected by natural barrier or covered daily).

(8) Name and address of disposal site (Either same as 1 and 2 above or information for contractor site)

(9) Agency ordering demolition Not applicable

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GENERAL NOTES

(1) The regulation applies to friable asbestos which would mean insulation containing more than one percent asbestos by weight which can be reduced to powder, when dry, by hand pressure. Any insulation purchased prior to 1975, containing asbestos as reinforcement, would meet the definition of friable asbestos and be subject to the regulation. New insulation does not contain asbestos.

(2) A standard text for a notification letter and a format for the notice (filled in with standard responses or indication of the type of response) are included.

(3) For locations with a reasonable amount of continuing activity involving insulation removal, paperwork would be minimized and made more routine if notification were made annually (in December for the coming year) using a best estimate of insulation quantities involved. Other locations may find that annual notification is unnecessary.

(4) Recognize that an Occupational Safety and Health Standard, 29 CFR, Chapter XVII, Section 1910.1001, "Toxic and Hazardous Substances" impose certain requirements for personnel equipment, clothing, monitoring, and medical examinations in work areas involving exposure to asbestos dust. There is a certain amount, but not total overlap with the EPA regulation.

(5) The EPA regulation applies to any work done at a facility whether by company or contract personnel. Company personnel involved with contractors should assure that notification responsibility is assigned to the contractor in the work specification, or performed by the company.

(6) It is suggested that disposal sites for asbestos be fenced (but not posted) even where another approved alternative requirement is being met to avoid future problems from uncovering the material inadvertently.

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ATTACHMENT 1

Excerpts from EPA Hazardous Air Pollutant Regulation

ENVIRONMENTAL PROTECTION AGENCY REGULATIONS ON NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

(40 CFR 61; 38 FR 8820, April 6, 1973; Amended by Code of Federal Regulations, Volume 40, Revised as of July 1, 1976; 41 FR 27967, July 8, 1976; 41 FR 33264, August 9, 1976; 41 FR 34629, August 16, 1976; 41 FR 36918, September 1, 1976; 41 FR 40108, September 17, 1976; 41 FR 40467, September 20, 1976; 41 FR 43148, September 30, 1976; 41 FR 44860, October 13, 1976; 41 FR 46559, October 20, 1976; 41 FR 53017, December 3, 1976; 41 FR 54758, December 15, 1976; 41 FR 56805, December 30, 1976)

Subpart A—General Provisions

§ 61.04 Address.

(a) All requests, reports, applications, submittals, and other communications to the Administrator pursuant to this part shall be submitted in duplicate and addressed to the appropriate Regional Office of the Environmental Protection Agency, to the attention of the Director, Enforcement Division. The regional offices are as follows:

Region I (Connecticut, Maine, New Hampshire, Massachusetts, Rhode Island, Vermont), John F. Kennedy Federal Building, Boston, Massachusetts 02203.

Region II (New York, New Jersey, Puerto Rico, Virgin Islands), Federal Office Building, 26 Federal Plaza (Foley Square), New York, N.Y. 10007.

Region III (Delaware, District of Columbia, Pennsylvania, Maryland, Virginia, West Virginia), Curtis Building, Sixth and Walnut Streets, Philadelphia, Pennsylvania 19106.

Region IV (Alabama, Florida, Georgia, Mississippi, Kentucky, North Carolina, South Carolina, Tennessee), Suite 300, 1421 Peachtree Street, Atlanta, Georgia 30309.

Region V (Illinois, Indiana, Minnesota, Michigan, Ohio, Wisconsin), 1 North Wacker Drive, Chicago, Illinois 60606.

Region VI (Arkansas, Louisiana, New Mexico, Oklahoma, Texas), 1600 Patterson Street, Dallas, Texas 75201.

Region VII (Iowa, Kansas, Missouri, Nebraska), 1735 Baltimore Street, Kansas City, Missouri 63108.

Region VIII (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming), 196 Lincoln Towers, 1860 Lincoln Street, Denver, Colorado 80203.

Region IX (Arizona, California, Hawaii, Nevada, Guam, American Samoa), 100 California Street, San Francisco, California 94111.

Region X (Washington, Oregon, Idaho, Alaska), 1200 Sixth Avenue, Seattle, Washington 98101.

(b) Section 112(d) directs the Administrator to delegate to each State, when appropriate, the authority to implement and enforce the national emission standards for hazardous air pollutants for stationary sources located in such State. All information required to be submitted to EPA under paragraph (a) of this section, must also be submitted to the appropriate State Agency of any State to which this authority has been delegated (provided, that each specific delegation may exempt sources from a certain federal or State reporting requirement). The appropriate mailing address for those States whose delegation request has been approved is as follows:

P-California:
Bay Area Air Pollution Control District, 939 Ellis Street, San Francisco, CA 94109.

Sacramento County Air Pollution Control District, 3701 Branch Center Road, Sacramento, CA 95827.

(L) State of Georgia, Environmental Protection Division, Department of Natural Resources, 270 Washington Street, S.W., Atlanta, Georgia 30334.

(HH)—New York: New York State Department of Environmental Conservation, 50 Wolf Road, Albany, New York 12233, attention: Division of Air Resources.

[40 FR 48347, October 15, 1975]

(II) North Carolina Environmental Management Commission, Department of Natural and Economic Resources, Division of Environmental Management, P.O. Box 27687, Raleigh, North Carolina 27611. Attention: Air Quality Section.

Subpart B—National Emission Standard for Asbestos

§ 61.22 Emission standard.

(d) Demolition and renovation: The requirements of this paragraph shall apply to any owner or operator of a demolition or renovation operation who intends to demolish any institutional, commercial, or industrial building (including apartment buildings having more than four dwelling units), structure, facility, installation, or portion thereof which contains any pipe, duct, boiler, tank, reactor, turbine, furnace, or structural member that is insulated or fireproofed with friable asbestos material, except as provided in paragraph (d)(1) of this section; or who intends to renovate any institutional, commercial, or industrial building, structure, facility, installation, or portion thereof where more than 80 meters (ca. 260 feet) of pipe insulated or fireproofed with friable asbestos material are stripped or removed, or more than 15 square meters (ca. 160 square feet) of friable asbestos material used to insulate or fireproof any duct, boiler, tank, reactor, turbine, furnace, or structural member are stripped or removed.

(2) Written notice of intention to demolish or renovate shall be provided to the Administrator by the owner or operator of the demolition or renovation operation. Such notice shall be postmarked or delivered to the Administrator at least 10 days prior to commencement of demolition, or as early as possible prior to commencement of emergency demolition subject to paragraph (d)(6) of this section, and as early as possible prior to commencement of renovation. Such notice shall include the following information:

(i) Name of owner or operator.

(ii) Address of owner or operator.

(iii) Description of the building, structure, facility, or installation to be demolished or renovated, including the size, age, and prior use of the structure, and the approximate amount of friable asbestos material used for insulation and fireproofing.

(iv) Address or location of the building, structure, facility, or installation.

(v) Scheduled starting and completion dates of demolition or renovation.

(vi) Nature of planned demolition or renovation and method(s) to be employed.

(vii) Procedures to be employed to meet the requirements of this paragraph and paragraph (j) of this section.

(viii) The name and address or location of the waste disposal site where the friable asbestos waste will be deposited.

(ix) Name, title, and authority of the State or local governmental representative who has ordered a demolition which is subject to paragraph (d)(6) of this section.

§ 61.25 Waste disposal sites.

(b) Warning signs shall be displayed at all entrances, and along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material is deposited, at intervals of 100 m (ca. 330 ft) or less except as specified in paragraph (d) of this section. Signs shall be posted in such a manner and location that a person may easily read the legend. The warning signs required by this paragraph shall conform to the requirements of 20" x 14" upright format signs specified in 29 CFR 1910.145(d)(4) and this paragraph. The signs shall display the following legend in the lower panel, with letter sizes and styles of a visibility at least equal to those specified in this paragraph.

LEGEND

ASBESTOS WASTE DISPOSAL SITE

Do Not Create Dust

Breathing Asbestos
Is Hazardous to Your Health

Notation

1" Sans Serif, Gothic or Block

¾" Sans Serif, Gothic or Block

14 Point Gothic

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

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DISTRIBUTION LIST

Location	Plant Manager	Plant Maintenance Manager Asst. Plant Manager	EP/OH Coordinator
Bound Brook	R. A. DeCoudres	P. A. Schultz J. L. Goodson	G. R. Stringer
Brownsville	W. W. McManus	A. L. Barefoot R. C. Glock	L. T. Windel
Elk Grove	J. O. Zimmerman	-	-
Institute	H. J. Karawan	P. Barna	R. L. Foster R. G. Hull
Marietta	C. A. Wales	C. E. Rogan, Jr.	C. C. Duffield
Niagara Falls	G. C. Merz	T. J. Oliver	-
Seadrift	D. L. Goris	G. W. Bartlett R. L. Shomo	V. D. Dutcher
Sistersville	A. W. Boyd	C. A. McNeill R. G. Link	J. A. Helm D. G. Olds
South Charleston	C. A. Keil	L. W. Phair R. N. Bates	L. E. Carlson J. L. Worstell
Taft	T. L. Rapp	A. G. Stephens W. E. Shackelford	A. W. Carlson D. L. White
Technical Center	J. W. Biddle	-	G. F. Hurley
Texas City	D. L. Engle	T. O. Blum J. S. Knight	J. B. Leverton
Torrance	J. A. Grady	J. M. Stogdon	J. P. Alexander
Latex Plants	-	-	K. G. Morlock
Distribution	-	-	A. R. Randall
UCCI	H. L. Robinson	R. A. Mendez D. L. Brucker	J. E. Stevens V. Vega

F. D. Bess - 511
N. W. Gaines - 511
R. C. Hieronymus - 511
E. Q. Hull,MD - 511
R. T. Kramer - 512
M. G. Manetti - NYO,46
A. E. Montagna - NYO,21
D. G. Moshier - 511
R. E. Peele - 511
E. C. Powell, Jr. - 511
T. P. Raby - 312
M. D. Seymour - 511
R. D. Stief - 511
B. H. Thomas - 511
D. T. Watters - 511

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Table Z-2

Material	8-hour time weighted average	Acceptable ceiling concentration	Acceptable maximum peak above the acceptable ceiling concentration for an 8-hour shift.	
			Concentration	Maximum duration
Benzene (Z37.4–1969)	10 p.p.m	25 p.p.m	50 p.p.m	10 minutes.
Beryllium and beryllium compounds (Z37.29–1970).	2 μg./M³	5 μg./M³	25 μg./M³	30 minutes.
Cadmium fume (Z37.5–1970)	0.1 mg./M³	3 mg./M³		
Cadmium dust (Z37.5–1970)	0.2 mg./M³	0.6 mg./M³		
Carbon disulfide (Z37.3–1968)	20 p.p.m	30 p.p.m	100 p.p.m	Do.
Carbon tetrachloride (Z37.17–1967)	10 p.p.m	25 p.p.m	200 p.p.m	5 minutes in any 4 hours.
Ethylene dibromide (Z37.31–1970)	20 p.p.m	30 p.p.m	50 p.p.m	5 minutes.
Ethylene dichloride (Z37.21–1969)	50 p.p.m	100 p.p.m	200 p.p.m	5 minutes in any 3 hours.
Formaldehyde (Z37.16–1967)	3 p.p.m	5 p.p.m	10 p.p.m	30 minutes.
Hydrogen fluoride (Z37.28–1969)	do			
Fluorides as dust (Z37.28–1969)	2.5 mg./M³			
Lead and its inorganic compounds (Z37.11–1969).	0.2 mg./M³			
Methyl chloride (Z37.18–1969)	100 p.p.m	200 p.p.m	300 p.p.m	5 minutes in any 3 hours.
Methylene Chloride (Z37.3–1969)	500 p.p.m	1,000 p.p.m	2,000 p.p.m	5 minutes in any 2 hours.
Organo (alkyl) mercury (Z37.30–1969)	0.01 mg./M³ [4]	0.04 mg./M³ [4]		
Styrene (Z37.15–1969)	100 p.p.m	200 p.p.m	600 p.p.m	5 minutes in any 3 hours.
Trichloroethylene (Z37.19–1967)	do	do	300 p.p.m	5 minutes in any 2 hours.
Tetrachloroethylene (Z37.22–1967)	do	do	do	5 minutes in any 3 hours.
Toluene (Z37.12–1967)	200 p.p.m	300 p.p.m	500 p.p.m	10 minutes.
Hydrogen sulfide (Z37.2–1966)		20 p.p.m	50 p.p.m	10 minutes once only if no other measurable exposure occurs.
Mercury (Z37.8–1971)		1 mg./10M³ [4]		
Chromic acid and chromates (Z37.7–1971)		do [5]		

Table Z-3—Mineral Dusts

Substance	Mppcf [1]	Mg/M³
Silica:		
Crystalline:		
Quartz (respirable)	250 [2]	10mg/M³ =
	%SiO₂+5	%SiO₂+2
Quartz (total dust)		30mg/M³
		%SiO₂+2
Cristobalite: Use ½ the value calculated from the count or mass formulae for quartz.		
Tridymite: Use ½ the value calculated from the formulae for quartz.		
Amorphous, including natural diatomaceous earth	20	80mg/M³
		%SiO₂
Silicates (less than 1% crystalline silica):		
Mica	20	
Soapstone	20	
Talc (non-asbestos-form)	20 [3]	
Talc (fibrous). Use asbestos limit		
Tremolite (see talc, fibrous)		
Portland cement	50	
Graphite (natural)	15	
Coal dust (respirable fraction less than 5% SiO₂)		2.4mg/M³ or
For more than 5% SiO₂		10mg/M³
		%SiO₂+2
Inert or Nuisance Dust:		
Respirable fraction	15	5mg/M³
Total dust	50	15mg/M³

NOTE: Conversion factors—
mppcf×35.3=million particles per cubic meter
=particles per c.c.

[1] Millions of particles per cubic foot of air, based on impinger samples counted by light-field technics.

[2] The percentage of crystalline silica in the formula is the amount determined from air-borne samples, except in those instances in which other methods have been shown to be applicable.

[3] As determined by the membrane filter method at 430×phase contrast magnification.

[4] Both concentration and percent quartz for the application of this limit are to be determined from the fraction passing a size-selector with the following characteristics:

Aerodynamic diameter (unit density sphere)	Percent passing selector
2	90
2.5	75
3.5	50
5.0	25
10	0

The measurements under this note refer to the use of an AEC instrument. If the respirable fraction of coal dust is determined with a MRE the figure corresponding to that of 2.4 Mg/M³ in the table for coal dust is 4.5 Mg/M³.

[5] Containing < 1% quartz; if > 1% quartz, use quartz limit.

§ 1910.1001 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 7, 1972.* 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.

(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.

(b) See § 1910.6 concerning the availability of ANSI Z9.2–1971, and the maintenance of a historic file in connection therewith. The address of the American National Standards Institute is given in § 1910.100.

(iii) *Particular tools.* All hand-operated and power-operated tools which may produce or release asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section, such as, but not limited to, saws, scorers, abrasive wheels, and drills, shall be provided with local exhaust ventilation systems in accordance with subdivision (ii) of this subparagraph.

(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 sufficient to prevent the emission of airborne fibers in excess of the exposure limits prescribed in paragraph (b) of this section, unless the usefulness of the product would be diminished thereby.

(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 so as to 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

OSHA Procedure

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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.

(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.

(i) *Air purifying respirators.* A reusable or single use air purifying respirator, or a respirator described in subdivision (ii) or (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 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 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 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 Standards Practices for Respiratory Protection, ANSI Z88.2-1969, which is incorporated by reference herein.

b. See § 1910.6 concerning the availability of ANSI Z88.2-1969 and the maintenance of an historic file in connection therewith. The address of the American National Standards Institute is given in § 1910.100.

(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 same employer, in the same geographical 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.

(3) Special clothing: The employer shall provide, and require the use of, special clothing, such as coveralls or similar whole body clothing, head coverings, gloves, and foot coverings for any employee exposed to airborne concentrations of asbestos fibers, which exceed the ceiling level prescribed in paragraph (b) of this section.

(4) Change rooms: (i) At any fixed place of employment exposed to airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section, the employer shall provide change rooms for employees working regularly at the place.

(ii) Clothes lockers: The employer shall provide two separate lockers or containers for each employee, so separated or isolated as to prevent contamination of the employee's street clothes from his work clothes.

(iii) Laundering: (a) Laundering of asbestos contaminated clothing shall be done so as to prevent the release of airborne asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section.

(b) Any employer who gives asbestos-contaminated clothing to another person for laundering shall inform such person of the requirement in (a) of this subdivision to effectively prevent the release of airborne asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section.

(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 intervals greater than 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.

(4) *Employee observation of monitoring.* Affected employees, or their representatives, shall be given a reasonable opportunity to observe any monitoring required by this paragraph and shall have access to the records thereof.

(g) *Caution signs and labels.* (1) *Caution signs.* (i) *Posting.* Caution signs shall be provided and displayed at each location 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 excessive concentrations of 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 § 1910.145(d)(4), 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	¾" 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.

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BRG 0134

Union Carbide trial exhibit UC-1701: Union Carbide Chemicals and Plastics Guidance for Compliance with EPA Asb... Published by AsbestosClaims.Law
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Legend	Notation
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.

(2) *Caution labels*—(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 in excess of the exposure limits prescribed in paragraph (b) of this section 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 if, with their dispersion, there would be an excessive concentration.

(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 in excess of the exposure limits prescribed in paragraph (b) of this section shall be collected and disposed of in sealed impermeable bags, or other closed, impermeable containers.

(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 20 years and shall be made available upon request to the Assistant Secretary of Labor for Occupational Safety and Health, the Director of the National Institute for Occupational Safety and Health, and to authorized representatives of either.

[1910.1001(i)(1) amended at 41 FR 11505, March 19, 1976]

(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 ($FEV_{1.0}$).

(3) *Annual examinations.* On or before January 31, 1973, 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.

(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 Assistant Secretary of Labor for Occupational Safety and Health, the Director of NIOSH, 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.

[Sec. 1910.93a added at 36 FR 23207, December 7, 1971, as emergency temporary standard; issued as permanent standard at 37 FR 11318, June 7, 1972, effective July 7, 1972; redesignated Sec. 1910.1001 at 40 FR 23072, May 28, 1975]

§ 1910.1002 Coal tar pitch volatiles; interpretation of term.

As used in Sec. 1910.1000 (Table Z-1), coal tar pitch volatiles include the fused polycyclic hydrocarbons which volatilize from the distillation residues of coal, petroleum, wood, and other organic matter.

[37 FR 24749 Effective November 21, 1972]

§ 1910.1003 4-Nitrobiphenyl.

(a) *Scope and application.* (1) This section applies to any area in which 4-Nitrobiphenyl, Chemical Abstracts Service Registry Number 92933 is manufactured, processed, repackaged, released, handled, or stored, but shall not apply to transshipment in sealed containers, except for the labeling requirements under paragraphs (e) (2), (3), and (4) of this section.

(2) This section shall not apply to solid or liquid mixtures containing less than 0.1 percent by weight or volume of 4-Nitrobiphenyl.

(b) *Definitions.* For the purposes of this section: (1) "Absolute filter" is one capable of retaining 99.97 percent of a mono disperse aerosol of 0.3 μm particles.

(2) "Authorized employee" means an employee whose duties require him to be in the regulated area and who has been specifically assigned by the employer.

(3) "Clean change room" means a room where employees put on clean clothing and/or protective equipment in an environment free of 4-Nitrobiphenyl. The clean change room shall be contiguous to and have an entry from a shower room, when the shower room facilities are otherwise required in this section.

(4) "Closed system" means an operation involving 4-Nitrobiphenyl where containment prevents the release of 4-Nitrobiphenyl into regulated areas, nonregulated areas, or the external environment.

(5) "Decontamination" means the inactivation of 4-Nitrobiphenyl or its safe disposal.

(6) "Director" means the Director, National Institute for Occupational Safety and Health, or any person directed by him or the Secretary of Health, Education, and Welfare to act for the Director.

(7) "Disposal" means the safe removal of 4-Nitrobiphenyl from the work environment.

(8) "Emergency" means an unforseen circumstance or set of circumstances resulting in the release of 4-Nitrobiphenyl which may result in exposure to or contact with 4-Nitrobiphenyl.

(9) "External environment" means any environment external to regulated and nonregulated areas.

(10) "Isolated system" means a fully enclosed structure other than the vessel of containment of 4-Nitrobiphenyl,

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QC - LTW
B&FB
MG

INTERNAL CORRESPONDENCE

B R O W N & R O O T, I N C.
P.O. Box 3370, Brownsville, Texas 78520

To (Name) All Brown & Root Foremen
Company
Location Brownsville Plant

Date September 16, 1976
Originating Dept.
Answering Letter Date

Copy B. Glock
G. Townsend

Subject DISPOSAL OF ASBESTOS MATERIAL

1. All asbestos scrap and cleanings will be placed in Plastic Bags or other approved sealed containers. (Wet Material)

2. All containers of asbestos will be labeled in accordance with OSHA 1910 93 A

(We will use our "Stick on" label)

3. Stock pile all containers until we get one or two dumpster loads to carry to the Port Dump.

4. Contact the Port the day before we plan to dispose of material.

Contact at Port: Capt. Gay
Phone: 831-4068

I would like for you or one of your Area Supt's be the person to contact Capt. Gay at the Port.

Thanks,

A. L. Barefoot

ALB/og

BRG 0136

~~LGT~~ LTW

QC TO KGT 4-3-79

INTERNAL CORRESPONDENCE

UNION CARBIDE CORPORATION

CHEMICALS AND PLASTICS

P. O. BOX 3370, BROWNSVILLE, TEXAS 78520

FYI File Asbestos

To (Name) Mr. F. D. Bess, 511

Company

Location

Date July 19, 1977

Originating Dept.

Answering letter date

Subject Asbestos Disposal

Copy to Mr. R. C. Glock, w/o attachments
Mr. J. D. Martin, 510

Dear Doug:

Attached are procedures from UCC Maintenance Operations (Dick Huber's letter), OSHA regulations and Brownsville Plant Maintenance practices related to asbestos handling. There appears to be inconsistency between EPA disposal requirements and OSHA guidelines.

We currently package asbestos as described in the attached procedure and dispose of the packaged material in the Brownsville city dump.

The City dump has no warning signs as required by the EPA procedure. Should we dispose of this material on-site or continue our current practice? Your guidance would be appreciated.

Very truly yours,

L. T. Windel

LTW/gr

Attachments

BRG 0125

UNION CARBIDE INTERNAL CORRESPONDENCE

KGT - Lets discuss - GTJ

CHEMICALS AND PLASTICS • P. O. BOX 8361, SOUTH CHARLESTON, WEST VIRGINIA 25303

To (Name) See Attached Distribution List

Date June 22, 1977

Originating Dept.

Subject Guidance for Compliance with EPA Asbestos Regulation

Gentlemen:

Enclosed is an outline providing guidance for compliance with Environmental Protection Agency regulation, 40 CFR 61, Hazardous Air Pollutants, as it applies to the removal and disposal of asbestos-containing insulation and the notification of appropriate regulatory agencies.

The outline summarizes key requirements of the regulation and suggests a standard format for use in notifying regulatory agencies.

It is recommended that current location procedures be reviewed and any appropriate changes implemented to conform with specified removal and disposal requirements. It is also suggested that locations within the same EPA Region coordinate the timing for initial notification of the proper regulatory agencies to make the submissions reasonably concurrent (August 1 might be a realistic target date).

It is further suggested that larger locations will find that annual notification on a calendar year basis (in early December of the prior year, except for 1977) using the best estimate of expected activity will minimize their paperwork.

The EPA regulation is in addition to an OSHA standard governing worker exposure (29 CFR, Chapter XVII, Section 1910.1001). However, only EPA requires notification of removal and disposal activities. The cost impact of modifying procedures to meet EPA regulations appears to be quite variable within Chemicals and Plastics, but would seem to be in the range of $100,000 - $200,000 total, on an annual basis.

Any requests for clarification of the plan requirements should be directed to Mr. D. G. Moshier of the Maintenance Operations Team. Copies of the regulation can be provided upon request (they may be found in the Environment Reporter at 121:0461).

Sincerely,

R. A. Huber
Maintenance Operations Manager

RAH/w

BRG 0126