

LOUISIANA DIVISION

Asbestos Handling Requirements

February 1993

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CONFIDENTIAL

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SECTION I

PURPOSE

This document defines safe handling procedures for asbestos materials used in Louisiana Division. The intent is to control personnel exposure to asbestos through training, maintenance programs, safe work procedures, proper use of protective equipment, and substitution of non-asbestos containing materials.

Asbestos has been widely used as insulation, structural wall board, roofing material, certain types of plastic equipment, etc. Asbestos fibers are currently in use as a mechanical reinforcing matrix in insulation, roofing paper, certain piping systems, gaskets, brake linings, clutch plates, etc. Dow Engineering Specifications were revised in 1970 to exclude asbestos-containing insulation before the enactment of Federal regulations controlling the use and handling of asbestos. It is Dow's philosophy to eliminate all uses of asbestos where adequate substitutes can be found.

The OSHA standards (1910.1001 and 1926.58) which became effective July 21, 1986 define the precautions, procedures and controls required for asbestos handling. These standards also define the allowable exposure levels and the manner of determining exposure levels. The National Emission Standard for Hazardous Air Pollutants (NESHAP) also established specific requirements for removal and disposal of asbestos-containing materials (ACM). In Louisiana, the state has assumed responsibility for administering the Federal Regulation (NESHAP) through the auspices of a set of requirements entitled Louisiana Emission Standard For Hazardous Air Pollutants (LESHAP). Violations of these regulations may result in a citation or fine or both. Dow is committed to meeting or exceeding these government regulations, and to protecting the health and well being of personnel.

SECTION II

POTENTIAL HEALTH EFFECTS

HEALTH & ENVIRONMENTAL SCIENCES T.L.M.E. SYSTEM

ASBESTOS 9/21/92

Latest Revision: 04/02/92

Synonyms: Amphibole

Appearance: fibrous solid in various colors.

Exposure Guidelines:

OSHA fibers >5 micron: OSHA PEL is 0.2 fibers/cc TWA; 1 fiber cc for 30-minute short-term exposure.

ACGIH TLV is 0.5 fibers amosite/cc, 0.2 fibers crocidolite/cc, 2 fibers chrysotile and other forms/cc; AIA.

OSHA General Industry Standard 29CFR 1910.1001. OSHA Construction Standard 29CFR 1926.58.

Potential Health Effects

This section includes possible adverse effects which could occur if this material is not handled in the recommended manner. These effects apply to stated material and may not apply to dilutions or formulations of that material.

EYE - Mechanical injury only.

SKIN - Mechanical injury only. - Skin absorption is unlikely due to physical properties. Asbestos fibers may penetrate skin and form wart-like lesions or "corns".

INGESTION - SINGLE dose oral LD50 has not been determined. -Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury.

ACUTE INHALATION EFFECTS - Excessive exposure to dust causes chronic inflammations of lung tissue and pleural membranes, as well as cancers, in both man and animals.

SUBCHRONIC EFFECTS - Prolonged exposure to asbestos dust has been found to cause pulmonary fibrosis (asbestosis), which may be disabling and even fatal.

CHRONIC EFFECTS/CARCINOGENICITY - Has been shown to cause cancer in humans. For hazard communication purposes under OSHA Standard CFR Part 1910.1200, this chemical is listed as a carcinogen by NTP and IARC.

TERATOGENIC EFFECTS - Birth defects are unlikely. Exposures having no adverse effects on the mother should have no effect on the fetus.

REPRODUCTIVE EFFECTS - In animal studies, has been shown not to interfere with reproduction.

MUTAGENICITY -Some forms of asbestos have been reported to induce chromosomal changes in tissue culture and/or fruit flies.

SECTION III

ASBESTOS TRAINING PROGRAM REQUIREMENTS

Employees who handle asbestos must be trained before initial assignment and annually thereafter. The asbestos standards and regulations, and other training materials are available to employees upon request, from Industrial Hygiene. Information must be presented in a manner the employee can understand.

The following items must be included in the training program:

1. The health effects associated with asbestos.
2. The relationship between smoking and exposure to asbestos in producing lung cancer.
3. Methods of recognizing asbestos.
4. The quantity, location, manner of use, release, and storage of asbestos and the specific nature of operations which could result in exposure to asbestos.
5. The engineering controls and work practices associated with the employee's job assignment.
6. The specific procedures implemented to protect employees from exposure to asbestos, such as appropriate work practices, emergency and clean-up procedures, and personal protective equipment to be used.
7. The purpose, proper use, and limitations of respirators and protective clothing.
8. The purpose and a description of the medical surveillance program required by this standard.
9. A review of the OSHA standard, including appendices.
10. The names, addresses and phone numbers of public health organizations which provide information, materials and/or conduct programs concerning smoking cessation (see Appendix G).
11. The requirements for posting signs and affixing labels, and the meaning of the required legends for such signs and labels.

SECTION IV

ASBESTOS AWARENESS

SUBJECT: ASBESTOS DO'S AND DON'TS

This section is provided as general guidance when working with or near ACM.

DO

1. Get positive identification. Sample and have bulk I.D. analysis performed at Industrial Hygiene.
2. Take sufficient samples. Some vessels, equipment, etc. may contain more than one type of insulation. Asbestos materials may be covered by refractory, siding, or insulation.
3. Consult the appropriate section of this document if asbestos is present. Materials containing more than 1% as determined by Polarized Light Microscopy (PLM) are considered ACM.
4. Put all asbestos waste (old insulation, transite, mastic, dust collector solids, disposable clothing, gaskets, packing, shingles, Haveg piping or equipment, furnace refractories, pump packing, pipe gaskets, brake shoes, etc.) in approved containers for disposal. The containers must be properly labeled to warn of the asbestos hazard and sent to the proper Division landfill.
5. Inform all personnel in the general area that asbestos work is in progress.

DO NOT

1. Use materials containing asbestos (i.e. insulation, fireproofing, transite siding, Haveg piping or equipment, weatherproofing, and cooling tower materials) where an adequate alternate exists. **MAJOR MANAGER APPROVAL IS REQUIRED** when using asbestos materials for matching replacement/ repair of existing asbestos covered structures or equipment if a suitable alternate is known.
2. Use asbestos labeled bags for disposal of general trash because of landfill permit requirements.
3. Sandblast or hydroblast materials containing asbestos. When sandblasting or hydroblasting adjacent areas, protect the asbestos materials from overblast. Examples of items to be protected are transite walls, pipe insulation, fireproofing, etc.
4. Use compressed air to remove asbestos materials. For example, do not clean brake drums and clutch housings with compressed air. This procedure may fill the surrounding atmosphere with asbestos fibers. An acceptable method is to use an approved vacuum. Dispose of the debris in approved containers and send to the LAD landfill.

ASBESTOS AWARENESS

DO NOT (continued)

5. Eat, drink, smoke, chew gum/tobacco products, or apply cosmetics in a regulated or a decontamination area.
6. Dry sweep asbestos materials.
7. Spray asbestos-containing materials.
8. Use hand-operated or power-operated tools (such as but not limited to saws, scorers, abrasive wheels and drills) without local exhaust ventilation if the use of these tools would cause asbestos exposures to personnel in excess of 0.2 fiber/cc. 8 hr. TWA, or 1 fiber/cc short-term excursion limit.
9. Hang plants or pictures on structures covered with asbestos-containing materials.
10. Sand asbestos-containing floor tiles.
11. Damage asbestos-containing materials while moving furniture or other objects.
12. Install curtains, drapes, or dividers in such a way that they damage asbestos-containing materials.
13. Dust floors, ceilings, moldings or other surfaces in asbestos-contaminated environments with a dry brush.
14. Use an ordinary vacuum to clean up asbestos-containing debris.
15. Remove ceiling tiles below asbestos-containing materials without wearing the proper respiratory protection, clearing the area of other people and observing asbestos removal waste disposal procedures.
16. Remove contaminated ventilation system filters without wetting. Do not shake.

NOTE: Item 5 through 16 are directly from the OSHA Asbestos Regulations.

SECTION IV

ASBESTOS-CONTAINING MATERIALS

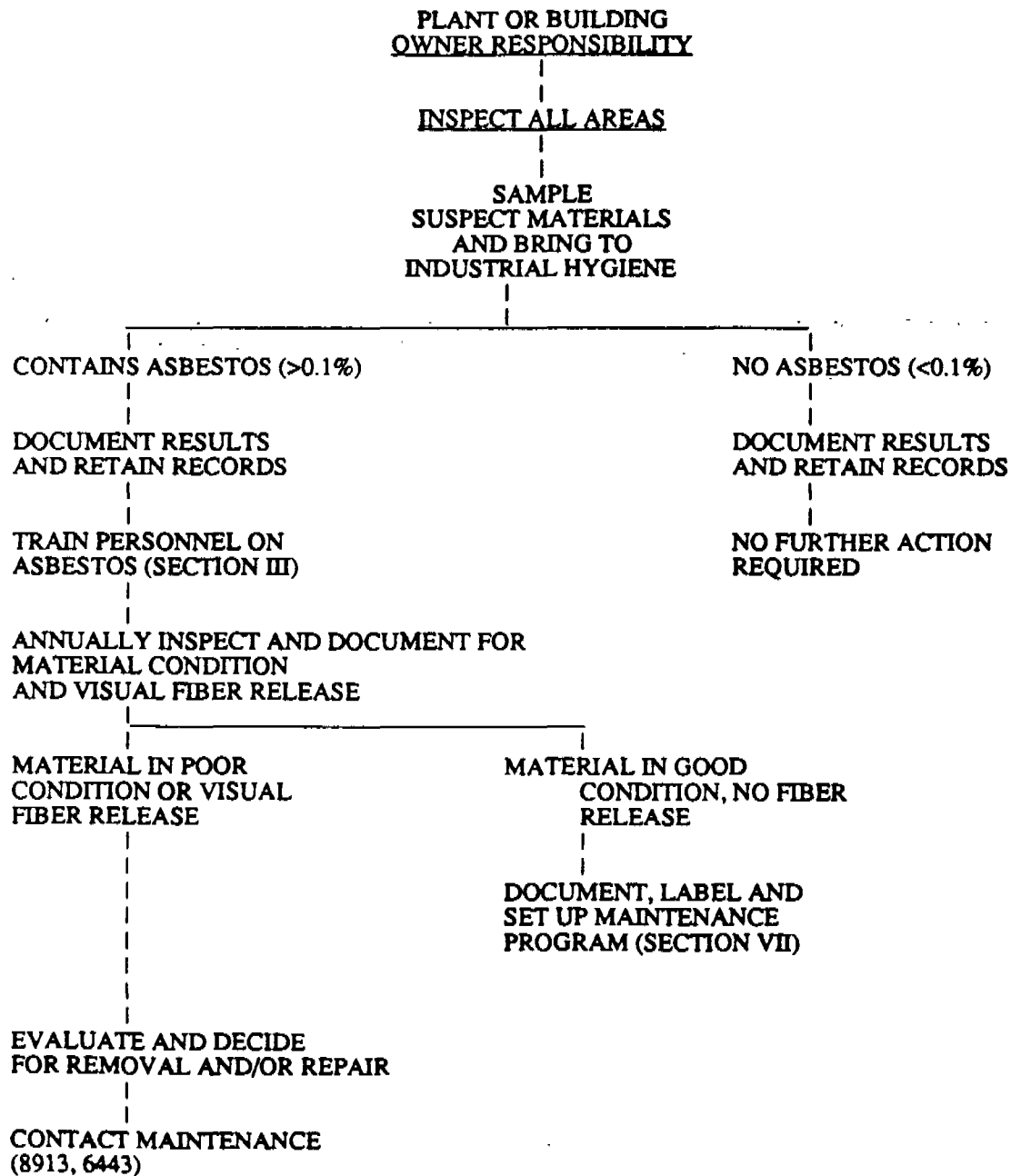
SUBDIVISION	GENERIC NAME	ASBESTOS (%)	DATES OF USE	BINDER/SIZING
Surfacing material	sprayed-or troweled-on	1-95	1935-1970	sodium silicate, portland cement, organic binders.
Preformed thermal products	batts, blocks, and pipe covering			
	85% magnesia	15	1926-1949	magnesium carbonate
	calcium silicate cloth	6-8	1949-1971	calcium silicate
Textiles	blankets (fire)100		1910-present	none
	felts:	90-95	1920-present	cotton/wool
	blue stripe	80	1920-present	cotton
	red stripe	90	1920-present	cotton
	green stripe	95	1920-present	cotton
	sheets	50-95	1920-present	cotton
	cord/rope/yarn	80-100	1920-present	cotton/wool
	tubing	80-85	1920-present	cotton/wool
	tape/strip	90	1920-present	cotton/wool
	curtains (theater, welding)	60-65	1945-present	cotton
Cementitious concrete-like	extrusion panels:	8	1965-1977	portland cement
	corrugated	20-45	1930-present	portland cement
	flat	40-50	1930-present	portland cement
	flexible	30-50	1930-present	portland cement
	flexible perforated	30-50	1930-present	portland cement
	laminated	35-50	1930-present	portland cement
	(outer surface)			
	roof tiles	20-30	1930-present	portland cement
	clapboard and shingles:			
	clapboard	12-15	1944-1945	portland cement
	siding shingles	12-14	unknown-present	portland cement
	roofing shingles	20-30	unknown-present	portland cement
	pipe	20-15	1935-present	portland cement
Paper products	corrugated:			
	high temperature	90	1935-present	sodium silicate
	moderate temp.	35-70	1910-present	starch
	indented	98	1935-present	cotton and organic binder
	millboard	80-85	1925-present	starch, lime, clay

SECTION IV (Continued)

ASBESTOS-CONTAINING MATERIALS

SUBDIVISION	GENERIC NAME	ASBESTOS (%)	DATES OF USE	BINDER/SIZING
Roofing felts	smooth surface	10-15	1910-present	asphalt
	mineral surface	10-15	1910-present	asphalt
	shingles	1	1971-1974	asphalt
	pipeline	10	1920-present	asphalt
Asbestos-containing compounds	caulking putties	30	1930-present	linseed oil
	adhesive (cold applied)	5-25	1945-present	asphalt
	joint compound		1945-1975	asphalt
	roofing asphalt	5	unknown-present	asphalt
	mastics	5-25	1920-present	asphalt
	asphalt tile cement	13-25	1959-present	asphalt
	roof putty	10-25	unknown-present	asphalt
	plaster/stucco	2-10	unknown-present	portland cement
	spackles	3-5	1930-1975	starch, casein, synthetic resins
	sealants			
	fire/water	50-55	1935-present	caster oil or poly-isobutylene
	cement, insulation	20-100	1900-1973	clay
	cement, finishing	55	1920-1973	clay
	cement, magnesia	15	1926-1950	magnesium carbonate
Asbestos ebony products		50	1930-present	portland cement
Flooring tile and sheet goods	vinyl	21	1950-present	poly (vinyl) chloride
	asbestos tile			
	asphalt/asbestos tile	26-33	1920-present	asphalt
	resilient	30	1950-present	dry oils
Wall covering	vinyl wallpaper	6-8	unknown-present	-
Paints and coatings	roof coating	4-7	1900-present	asphalt
	air tight	15	1940-present	asphalt

SECTION IV
ASBESTOS AWARENESS REQUIREMENTS FLOW DIAGRAM



SECTION V

BUILDING SURVEY

The Industrial Hygiene Department conducts surveys of buildings in this Division to assist in determining and documenting where asbestos is located. We are not required to remove the asbestos; however, the Labeling, Handling, and Maintenance Requirements of the regulations must be followed (See Section VI).

We are allowed to place signs at the entrance to each facility identifying the general presence of asbestos. This, of course, is when used in conjunction with an education and training course which includes written programs for the overall awareness of employees and people who might work in areas where asbestos is located. Signs are available from Division Stock.

Regulation requirements for asbestos removal from buildings is extremely extensive and expensive and therefore, will need to be handled on an individual basis utilizing the Industrial Hygiene Department.

SECTION VI

MINIMUM REQUIREMENTS FOR MAINTAINING ASBESTOS

Although the removal of asbestos-containing material (ACM) is not currently required, all facilities having ACM present must conduct an asbestos maintenance program.

The minimum requirements of this program are:

1. An initial inspection of buildings (Responsibility of Industrial Hygiene) and process areas (Responsibility of Facility) to determine the presence or absence of asbestos containing materials.
2. Development of an inventory of all asbestos-containing materials in the facility. The inventory may be a blueprint, diagram or written description which identifies the location and approximate amount of asbestos. Records shall be maintained until the asbestos-containing materials are removed (Responsibility of Facility).
3. Maintenance of all labeling of asbestos-containing materials in the facility (Responsibility of Facility).
4. Prompt clean up of any asbestos contamination.
5. Inspection of all asbestos-containing materials annually to detect deterioration. If deterioration is found, corrective action must be taken and noted on the "Annual Inspection" record (Responsibility of Facility).
6. Written procedures for handling asbestos materials during the performance of maintenance, demolition and renovation activities (Responsibility of Facility).
7. Training of block personnel who may be required to handle asbestos-containing materials as outlined in the Training Section III of this document (Responsibility of Personnel Supervision).
8. Documentation of compliance with this program (Responsibility of Facility and/or Personnel Supervision).

SECTION VII

ASBESTOS OPERATIONS REQUIREMENTS

INTRODUCTION:

The National Emission Standard for Hazardous Air Pollutants (NESHAP) established specific requirements for manufacturing, demolition and renovation, and waste disposal of ACM. The Louisiana Department of Environmental Quality has assumed responsibility for administering the NESHAP Standard Program.

- A. Requirements For Manufacturers- the following requirements apply to manufacturing operations using commercial asbestos (Cell Service, Chlorine and Chlor-Alkali II Plants).
1. No visible emissions may be discharged to outside air from these operations or from any building or structure in which they are conducted or from any other fugitive sources.
 2. Specific methods listed in Section VII, paragraph B must be used to clean emission from these operations containing particulate asbestos material before they escape to, or are vented to, the outside air.
 3. Monitor each potential source of asbestos emission from any part of the manufacturing facility, including air cleaning devices, process equipment, and buildings housing material processing and handling equipment, at least once each day during daylight hours for visible emissions to the air during periods of operation (Cell Service Only). See Appendix B for the procedure for Visible Emission Monitoring.
 4. Inspect each air cleaning device at least once each week for proper operation, potential for malfunctions, the presence of tears, holes, and abrasions in filter bags, and dust deposits on clean side of bags (Cell Service Only). See Appendix D for a copy of the Air Cleaning Device Inspection Checklist.
 5. For air cleaning devices that cannot be inspected on a weekly basis, a written maintenance plan must be submitted to the administrator.
 6. Retain a copy of all monitoring and inspection records for at least 2 years.
 7. Submit quarterly a copy of the visible emission inspection records to the administrator, if visible emissions occurred during the report period. See Appendix C for a copy of the Record of Visible Emission Monitoring. Quarterly reports must be post marked by the 30th-day following the end of the calendar quarter.

SECTION VII

B. Prevention Of Asbestos Air Emissions From Manufacturing Operations: the following requirements apply to manufacturing operations using commercial asbestos (Cell Service Only).

1. The following methods must be used to clean emissions from operations containing particulate asbestos material before it escapes to, or is vented to, the outside air:
 - a. Use fabric filter collection devices.
 - b. Operate the fabric filter collection devices at a pressure drop of no more than 4 inches water gauge as measured across the filter fabric.
 - c. Ensure air flow permeability does not exceed 30 ft³ min/ft² for woven fabrics or 35 ft³/min/ft² for felted fabrics.
 - d. Ensure that felted fabric weighs at least 14 ounces per square yard and is at least one-sixteenth inch thick.
 - e. Avoid using synthetic fabrics that contain fill yard other than that which is spun.
2. Properly install, use, operate and maintain air cleaning equipment. Bypass devices may be used only during upset or emergency conditions, and then only for so long as it takes to shut down the operation generating the particulate asbestos material.
3. For fabric filter collection devices installed after January 16, 1989 provide for easy inspection for faulty bags.
4. If the use of fabric creates a fire or explosion hazard, or the administrative authority determines that a fabric filter is not feasible, the administrator may authorize as a substitute: .
 - a. The use of wet collectors designed to operate at least at 40 inches water gage.
 - b. The use of a HEPA filter that is certified to be at least 99.97 percent efficient for 0.3 micron particles.
 - c. The administrator may authorize the use of other filtering equipment if the owner or operator demonstrates that it is equivalent in filtering particulate asbestos material.

SECTION VII

C. **Reporting Requirements For Demolition And Renovation Operations**-the following reporting requirements apply to demolition and renovation projects involving the presence of asbestos-containing material.

1. Inspect the affected facility or part of the facility where the demolition or renovation activity will occur for the presence of asbestos, including Category I nonfriable and Category II nonfriable asbestos-containing materials prior to the start of work.
2. Provide a typed copy of Notification of Demolition and Renovation Form (Appendix E) to the administrative authority **10 working days** prior to commencement of demolition and/or renovation work (commencement is considered to be the start of any activity that would break up, dislodge, or similarly disturb asbestos material).
3. Provide telephone notification of emergencies to the Louisiana Division Asbestos Manager (x1817 or 769-4462) who will notify the DEQ Regional Office, or the DEQ Emergency Hotline after working hours and weekends. DEQ Notification **MUST** occur immediately which is **NO** later than one hour after learning of the incident that induces emergency demolition or renovation operations. The notification by phone shall include:
 - a. The reason for the emergency
 - b. The steps taken to minimize the hazards to workers and the public
 - c. The estimated quantities of friable and nonfriable ACM to be handled.

Within **5 working days** after notification by phone, a typed copy of Notification of Demolition and Renovation Form (Appendix E) must be submitted to the DEQ.

4. Provide an update of written notice, as necessary, including when the amount of asbestos affected changes by at least **20 percent**.
5. Forward completed copy of notification form to Industrial Hygiene. Industrial Hygiene will finish processing the form, and then convey it to the DEQ.
6. For all demolition or renovation work, except nonscheduled operations (such as routine, non predictable maintenance involving less than one cubic yard) covered by the Division yearly blanket Asbestos Disposal Verification Form (ADVF), or emergency type renovations, the administrative authority must be renotified if either of the following situations
 - a. Start date will be later than that contained in the original notification; re notification must be made by telephone as soon as possible before the original start date. Written notification of the new start date must be made as soon as possible before, and no later than the original start date, or
 - b. Start date will be before that contained in the original notification; written re notification must be provided at least **10 working days** before the new start date.

SECTION VII

7. Demolition or renovation operations covered by Paragraph (6) must not begin on a date other than the date contained in the written notice of the new start date.
8. For Demolitions where regulated asbestos-containing material (RACM) is present as Category I nonfriable material in good condition, or if RACM is not present, a typed copy of Notification of Demolition and Renovation Form (Appendix E) must be submitted to the DEQ at least 10 working days prior to beginning work.
9. Receipt and approval of the notification form by the DEQ will result in the issuance of an ADVF.
10. Within 24 hours after the Demolition or Renovation activity has ended and the work area has been cleaned, the LAD Asbestos Manager must be notified so that verbal notification of the completion of the project may be made to the DEQ Regional Office. The abatement activity will be considered complete only after the DEQ has been notified. Work area cleanup involves:
 - a. Removing all loose debris in and adjacent to the immediate work area, and
 - b. Encapsulating all remaining RACM in the immediate work area.
11. Sections of the ADVF must be filled out by the owner/generator (project/job designated individual), the waste material transporter, and the landfill operator who upon completing that section must return the original copy to the DEQ and a copy to the owner/generator.
12. ADVFs must be retained, including the copy of the shipment record signed by Environmental Operations, for at least two years.
13. Demolition or renovation contracts awarded by the Louisiana Division shall contain the requirement for notifying the State DEQ where asbestos-containing material is involved.

SECTION VII

- D. Procedure For Preventing Asbestos Emissions-the following procedures must be used to prevent emissions of particulate asbestos material to the air.
1. Regulated asbestos-containing material (RACM) must be removed prior to beginning any demolition or renovation activity that would break up, dislodge, or similarly disturb the material or preclude access to the material for subsequent removal. Regulated asbestos-containing material (RACM) includes the following:
 - a. Friable asbestos material; and
 - b. Category I nonfriable ACM (asbestos-containing gaskets, packing, resilient floor coverings, asphalt roofing coverings) that has become friable; and
 - c. Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading; and
 - d. Category II nonfriable ACM any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos that, when dry cannot be crumbled, pulverized, or reduced to powder by hand pressure)
 2. Friable asbestos materials to be stripped or removed from any facility must be adequately wetted prior to stripping or removing.
 3. Facility components covered or coated with friable asbestos materials may be taken out as units or as sections, provided the friable asbestos materials exposed during cutting or disjoining are adequately wetted.
 4. Units or sections must be carefully lowered to the floor and/or ground level, not dropping, throwing, sliding, or otherwise damaging or disturbing the RACM.
 5. All friable asbestos materials that have been removed or stripped must be adequately wetted to ensure they remain wet during all remaining stages of demolition or renovation and related handling operations.
 6. Local exhaust ventilation and collection systems may be used, instead of wetting, to prevent particulate asbestos emissions when wet removal would result in damage to equipment during renovation operations.
 7. Prior written approval must be received before deviating from wet removal methods by use of any of the following emission control methods:
 - a. A local exhaust ventilation and collection system designed and operated to capture the particulate asbestos material.
 - b. A glove-bag system designed and operated to contain the particulate asbestos material produced by the stripping and removal of material.
 - c. Leak-tight wrapping to contain all RACM prior to being dismantled.

SECTION VII

E. Asbestos Gasket and Packing Material Storage, Handling, And Removal.

1. STORAGE/HANDLING:

- a. Preformed gaskets, sheet gasket material, and packing must be stored in a designated, clean, labeled area separate from non-asbestos containing material.
- b. The storage area must be regularly cleaned with a HEPA filtered vacuum (as often as necessary) to prevent the accumulation of asbestos-containing dust and debris.
- c. ACMs should be stored in low traffic areas and not in an area where personnel are normally located.
- d. During storage and handling activities, gaskets and packing must be treated with care to minimize the potential for releasing fibers to the air.
- e. When possible, it is recommended that gaskets, sheet gasket material, and packing be stored in labeled plastic bags or packaged in protective envelopes.

2. GASKET CUTTING:

- a. The gasket fabrication area must be identified and labeled as an Asbestos Handling Area.
- b. Sharp edged scissors or knives are the preferred tools for use in fabricating asbestos sheet gaskets. If a powered mechanical cutting device is used, the safety and protective equipment requirements of Small-scale, short duration projects (Section VII- Part F) must be followed, including the use of local exhaust ventilation equipped with a HEPA filter dust collection system.
- c. Asbestos material, debris, or dust must not be allowed to accumulate on the sheet cutting surface (work area table).
- d. The work area must be cleaned periodically with a HEPA filter equipped vacuum cleaner (may involve abatement personnel) to prevent the accumulation of dust and loose material.
- e. Dispose of scrap material or any other items that may be contaminated in a properly labeled asbestos disposal bag.

3. SAFETY/PERSONAL PROTECTIVE EQUIPMENT:

- a. Work permits and personal protective equipment appropriate for the job and its location must be obtained prior to removing gaskets and/or packing.
- b. Minimum personal safety equipment required for the removal of a gasket or packing material will be the same as the job location requirements as long as the removal is performed so that material does not become friable (i.e. wet removal, removal by hand, or no sanding, cutting, grinding, or abrading).
- c. Gasket or packing material in poor condition, friable, or which will be subjected to mechanical removal techniques (such as sanding, grinding, abrading, drilling, cutting, chipping) must be handled by certified asbestos abatement personnel.
- d. Professional, licensed asbestos abatement contractor personnel that work with ACM on a daily basis follow additional and more stringent safety requirements.

SECTION VII

4. MONITORING:

Periodic personnel monitoring must be conducted during gasket or packing removal work to substantiate that the level of emissions are below the PEL (0.2 fiber/cc) and/or STEL (1 f/cc), and to maintain a current data base for the Division. Consult Industrial Hygiene for monitoring information for the job in question.

5. REMOVAL PROCEDURES:

- a. The removal of nonfriable preformed gaskets and packings can be performed by trained block personnel including maintenance workers, or by an asbestos abatement contractor depending on Plant/Block preference.
- b. All gaskets and packings must be wetted down before, during, and after removal handling operations to prevent the release of airborne fibers.
- c. The water used for wetting must contain a surfactant to improve its ability to penetrate the material. Fantastik, a liquid spray cleaner, is widely accepted as the wetting agent of choice for ACM. Care should be taken not to apply an excessive amount of spray which could cause the material to crumble and/or become mushy.
- d. A gasket or packing material that requires the use of sanding, grinding, or abrading (including drilling, cutting, or chipping) must be handled by certified asbestos abatement personnel.
- e. The use of powered mechanical tools that will cause damage to the nonfriable ACM must be equipped to eliminate or minimize the potential for fiber release. A powered buffer equipped with a local exhaust and ventilation collection system is available from the Division Tool Room.
- f. Waste gasket and packing material must be disposed of in the plant by placing it in labeled plastic bags.
- g. Waste material must be properly labeled and packaged for acceptance at the landfill for disposal. See Appendix H for Labeling Specifications, and Section VIII for the requirements for Handling and Packaging for Disposal.

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Addendum to the Louisiana Division Asbestos Handling Guidelines

Modification to Asbestos Gasket Removal Procedures

As part of the Division's effort to reduce expenses, attention has been given to the cost of removing asbestos gaskets. These procedures have evolved over the years and it was in 1991 when Dow and "Nestor" contractor maintenance groups asked Industrial Hygiene to work with them to develop a simpler procedure. They felt that many of the procedural requirements under the regulations were too complicated. They wanted a fool proof means of minimizing the potential of asbestos exposure.

We all agreed in principle that if a gasket could be removed intact, then there would be no asbestos friability issue. Furthermore, if the gasket was bonded to the flange face and could only be removed by tearing, then the Petrin asbestos contractor would be called to finish the job. This then became the accepted practice.

A review of 1992 costs showed that ~\$60,000 was spent having Petrin remove those bonded gaskets. However, a great majority of the work involved using a simple hand tool (such as a putty knife scraper), keeping the surface wet, and capturing all of the gasket pieces and any wetting agent run off. Based on these removal practices, we have an opportunity to significantly reduce the above cost by doing a great deal of the gasket removal work ourselves.

Historical exposure monitoring data shows very low fiber counts for gasket removal work (we are currently gathering additional and specific data points), and talking with others (both inside and outside of Dow) would suggest that plant operations and maintenance personnel should be able to do most gasket removal without creating airborne fibers using the above procedure. Therefore, this would require no special training or special personal protective equipment. The key is a careful awareness to keep gaskets wet and containing all gasket pieces and run-off for proper disposal. It is predicted that this procedure should cover > 90% of the gasket removal in the Division.

However, there is a judgment factor that enters into this scenario. That is, if the gasket is so tightly bonded that it will not come off without using aggressive techniques (such as sanding, grinding, abrading, cutting, chipping) or that a gasket, because of the type of service, is highly friable at the breaking of the flange, then these removals would require asbestos trained personnel. This could be either in-block or Petrin contractors wearing proper PPE (such as half face respirator with HEPA filters and disposable clothing) and using prescribed removal techniques.

The attached procedure outlines the requirements for removing nonfriable gaskets.

**Addendum to the Louisiana Division
Asbestos Handling Guidelines**

Nonfriable Asbestos Gasket Removal Procedure

1. Safety/Personal Protective Equipment

- a. Train (HAZCOM information) individuals involved in removing nonfriable gaskets initially and annually thereafter on hazards of material (MSDS/CETA).
- b. Issue work permit for the job listing minimum PPE required. Minimum PPE for nonfriable asbestos gasket removal will be the same as the job location requirements.

2. Removal

- a. Spray the gasket surface with the wetting agent (Fantastik or approved substitute) before removal.
- b. Lift the gasket out, or if necessary insert the blade of a scraper (putty knife) to free up the gasket.
- c. Utilize some means (e.g. plastic bag, visqueen) to catch any pieces of gasket material produced during removal, and any wetting agent run off.
- d. Dispose of the waste gasket and other associated debris in a labeled plastic bag. Apply a few squirts of the wetting agent to the material and the inside surface of the bag before closing.
- e. Division implementation of this procedure should capture 90 - 95% of the gasket removal work.
- f. Gaskets that are friable because of the service they are in, or their removal requires the use of aggressive techniques would require the involvement of asbestos trained personnel.

Friable gasket removal can be handled by either in-block or Petrin Asbestos Personnel, that have been properly trained, that are wearing personal protective equipment (e.g. half face respirators with HEPA filter and disposable outer garments) and that are able to follow the appropriate work practices (Dow/OSHA).

SECTION VII

F. Small-Scale, Short-Duration Projects

The following requirements apply to small-scale, short-duration asbestos renovation (repair and maintenance activities) and/or demolition projects:

1. **SCOPE-** small-scale, short-duration renovation and maintenance activities are tasks such as, but not limited to :
 - a. Removal of asbestos-containing insulation on pipes for repair work, or
 - b. Removal of small quantities of asbestos-containing insulation on beams or above ceiling, or
 - c. Removal and replacement of valves, gaskets, or
 - d. Installation or removal of small sections of asbestos-containing drywall (not gypsum based products) or roofing, or
 - e. Installation of electrical conduits through or proximate to asbestos-containing materials.
2. **TRAINING:**
 - a. All personnel involved with the removal, handling, and disposal of asbestos must be trained before initial assignment and annually thereafter.
 - b. The required contents of the employee training program are outlined in Section III of this document.
3. **SAFETY/PROTECTIVE EQUIPMENT:**
 - a. Work permits and personal protective equipment appropriate for the job and its location must be obtained prior to starting work.
 - b. Respirators equipped with HEPA filters must be worn during removal and cleanup activities. A dust mask or disposable type respirator are not permitted for asbestos work.
 - c. Medical approval must be obtained prior to assigning work that requires wearing of a respirator.
 - d. Employees wearing respirators for asbestos work must have been fit tested within the last six months.
 - e. Disposable protective coveralls must be worn during removal and cleanup operations; acceptable footwear includes rubber boots or coverall boots.
4. **MONITORING:**
 - a. Personnel monitoring must be performed at the beginning of the job unless worker(s) wear air-supplied, positive-pressure, full-facepiece respirators, or previous monitoring of similar jobs indicate 8 hour TWA exposure potentials are less than the action level of 0.1 fibers/cc. Consult Industrial Hygiene prior to starting work for information on monitoring requirements for the job in question.
 - b. Monitoring results must be reported to affected employees as soon as possible following receipt of the results.
 - c. Monitoring results must be communicated to the affected employee(s) in writing either individually or by posting at a centrally located place that is accessible to the affected employee(s).

SECTION VII

5. RESTRICTED AREA:

- a. A restricted area must be established and asbestos warning signs posted to restrict access to authorized personnel only.
- b. All persons entering a restricted area must be supplied with the proper respirator.
- c. Movable objects must be removed from the work area to protect them from asbestos contamination.
- d. Objects that cannot be removed must be covered with 6 mil-thick polyethylene plastic sheeting as well as underneath the work area.
- e. Scaffold landings must be covered with 6-mil-thick polyethylene.
- f. Materials must be lowered to ground level not dropped.
- g. Pre-job planning must include provisions for keeping deteriorated asbestos-containing material in place after outer jacketing is removed.
- h. Mini-enclosures or negative pressure enclosures must be used for jobs when ever feasible if the potential exposure level may equal or exceed the 8 hour TWA of 0.2 f/cc (local exhaust ventilation collection systems or other engineering control methods may eliminate the need for enclosures).

6. REMOVAL:- the following procedures must be employed singly, or in combination to achieve compliance with the permissible exposure limit of 0.2 fibers/cc.

- a. Whenever feasible, wet removal methods must be used during small-scale, short-duration maintenance and renovation operations.
- b. Wet methods, wetting agents, or removal encapsulates must be used before, during (e.g., cutting, removal) and after removal (e.g., handling and cleanup).
- c. Asbestos-containing material must be thoroughly wetted, but not excessively so that the material loses its integrity.
- d. Dry removal may be performed with prior approval from the DEQ only in cases where asbestos removal work must be performed on live electrical equipment, on hot steam lines, or in other areas where water will seriously damage materials or equipment.
- e. Dry removal must be performed using local exhaust ventilation systems equipped with HEPA Filter dust collection system, and/or enclosure or isolation of work area.
- f. Hand operated or power operated tools (such as but not limited to saws, scorers, abrasive wheels, and drills) used must be equipped with local exhaust ventilation provided with HEPA filter dust collection systems.
- g. Any vacuuming work performed must be done with equipment having HEPA filtering systems.
- h. When ACM is removed, it must be promptly placed in labeled containers (plastic bags or wrapping). See Appendix H for labeling specifications, and Section VIII for requirements on packaging asbestos-containing waste material.
- i. Whenever feasible, the surface from which the asbestos has been removed must be wetted and cleaned.
- j. Termination points of exposed asbestos must be encapsulated.
- k. Bags or containers of asbestos-containing waste material must be lowered to the ground, not dropped.

SECTION VII

6. REMOVAL (continued):

- l. Upon completion of the removal work, a thorough inspection and cleanup of the area must be conducted. Polyethylene plastic used as covering material must be disposed of in disposal containers, and contaminated or broken disposal bags must be double bagged.
- m. The work area must be washed down or vacuumed as required.
- n. Items removed from the restricted area during removal work must be decontaminated.
- o. Decontamination requirements include rinsing or vacuuming gloves and boots, and the removal and disposal of suits at the work site in sealed disposal bags or containers.
- p. All materials used to establish the restricted area must be removed.
- q. Bags/plastic wrapped asbestos-containing waste materials must be transported by Environmental Operations to the Division disposal site.

G. Large-Scale, Long-Duration Asbestos Projects

Large-scale, long-duration asbestos-containing material removal operations should be handled by a professional, licensed abatement contractor. Projects of this size and scope require extensive equipment, elaborate planning and procedures, decontamination, training requirements, and medical surveillance program.

Operations of this magnitude will be evaluated on a project by project basis by Industrial Hygiene, Maintenance and Project Supervision.

SECTION VII

H. Equipment Removed For Repair, Storage Or Scrap

The removal of certain pieces of equipment for repair in shops, storage in equipment yards or discarding as scrap may be handled as follows:

1. For large facility components such as insulated reactor vessels, large tanks, and steam generators being sent to repair shops or storage, the regulated asbestos-containing material (RACM) is not required to be stripped if the following requirements are met:
 - a. The equipment is removed as a unit or in sections without disturbing or damaging the RACM.
 - b. The exposed RACM is kept adequately wet during cutting or disjoining.
 - c. Each section or unit is carefully lowered to the floor and/or to ground level, not dropping, throwing, sliding, or otherwise damaging or disturbing the RACM.
 - d. The component is encased in leak-tight plastic wrapping, and the leak-tight wrapping is labeled as per APPENDIX H.
 - e. The component is transported, stored, or repaired and reinstalled without damaging or disturbing the RACM.
 - f. The vehicle(s) used for transporting the component is marked as per APPENDIX I during loading and unloading.
2. For equipment being sent to repair shops or storage equipped with nonfriable gasket and/or packing material, the gasket and/or packing is not required to be removed if the following requirements are met:
 - a. The equipment is removed, transported, repaired, and reinstalled without damaging or disturbing the ACM.
 - b. The presence of asbestos-containing material is conveyed to repair shop supervision.
3. For pipe equipped with nonfriable gaskets, that is being removed for the purpose of scraping, the gaskets are not required to be removed if the following requirements are met:
 - a. The asbestos-containing pipe insulation is removed.
 - b. The line is removed, transported and handled without damaging and disturbing the gaskets.

SECTION VII

I. Motorized Equipment Clutch And Brake Repair

GENERAL:

1. Employees who work with asbestos must receive training in asbestos hazards before initial assignment and annually thereafter.
2. Do NOT use compressed air to remove asbestos materials or dust from brake drums or clutch housing.
3. Place 6-mil polyethylene plastic sheeting underneath the work area.

SAFETY REQUIREMENTS:

1. Safety equipment required by the job location must be worn.
2. An approved respirator must be worn during material removal and clean up. Employees must have completed the mandatory fit test within the last six months.
3. Barricade area with yellow tape or rope to limit access.

REMOVAL:

1. Two methods can be used to reduce exposure to asbestos fibers. They are the Enclosed Cylinder HEPA Vacuum System Method or the Wetting Method.
 - a. The Enclosed Cylinder HEPA Filter Vacuum System Method consists of three components:
 - A wheel-shaped cylinder designed to cover and enclose the wheel assembly
 - A compressed-air hose and nozzle that fits into a port in the cylinder, and
 - A HEPA-filter vacuum used to evacuate airborne dust generated within the cylinder by the compressed air.
 - b. The Wetting Method consists of spraying water containing a surfactant to loosen the asbestos containing residue and to capture the resulting airborne particles in the water mist.
 - Begin spraying the asbestos-containing parts at a sufficient distance to ensure that the asbestos particles are not dislodged by the velocity of the water spray.
 - When the asbestos particles are thoroughly wetted, the spray may be brought closer to the parts and the parts may be sprayed as necessary to remove grease and other material.
 - The parts must then be wiped and with disposable rags or towels which must be placed in a labeled plastic bag and sealed while they are still wet.
 - Proper protective equipment and disposal is recommended (see Section VII.E).
2. Replaced brake shoes or pads, clutch plates, disposal rags or towels and other contaminated materials for disposal must be handled as asbestos-containing waste material (See Section VIII for information on packaging and disposal).
3. When the job is completed, a thorough inspection must be made to ensure all asbestos contaminated materials have been picked up. The work area must be vacuumed with a HEPA vac or washed down.

SECTION VIII

PACKAGING, HANDLING AND DISPOSAL OF ASBESTOS-CONTAINING WASTE MATERIAL

1. No visible emissions may be discharged to the outside air during collection, processing, packaging, or transporting of asbestos-containing waste material. The following methods must be used to control emissions:
 - a. Adequately wet the asbestos material using a surfactant containing liquid (Fantastik) or methods described in Section VII, Part D, (Preventing Asbestos Emissions).
 - b. After wetting, seal the material in plastic bags labeled with an approved asbestos label (See Appendix H for label specifications); or for materials that will not fit into bags without additional breaking, wrap materials with leak-tight 6-mil polyethylene plastic sheeting and label.
 - c. Polyethylene bags must be sealed by duct tape or tying; torn bags must be double bagged.
2. Disposable clothing worn during asbestos removal packaging, and disposal must be placed into properly labeled polyethylene bags and disposed of as asbestos-containing waste material.
3. A plastic pack containing a polyethylene bag liner may be used to accumulate small quantities of bagged and sealed asbestos-containing wastes (Brake shoes, Brake dust, Garlock Gaskets, etc.). The drum must be labeled with an approved warning label, be labeled "For Asbestos-Containing Waste Material Only", and the top must be kept on except during deposit of waste.
4. For asbestos-containing waste material that must be transported off-site from where it is generated (Brine Production, Promix, Areas outside Dow Plaquemine Site) for disposal in the Division Landfill must in addition to the specified OSHA label, label the bags/containers or wrapped materials with the name of the waste generator and the location at which the waste was generated.
5. All asbestos-containing waste material shall be deposited as soon as practical at the approved Division Landfill.
6. Dumpsters used for unbagged asbestos-containing waste material must contain a disposable polyethylene liner obtained from, or approved by, Environmental Operations.
7. Dumpster boxes must not be filled higher than the top of the side walls.

SECTION VIII

8. Dumpster liners must be lapped over and secured for temporary closure whenever the work is discontinued for an extended period of time (overnight, holiday, weekend).
9. Dumpster liners must be securely closed before transporting the dumpsters; the sides and ends are to be lapped over and then secured. Proper lapping and sealing procedures are provided in instructions available from Environmental Operations.
10. Tie-downs for dumpster liners must not be attached to the dumpster boxes.
11. Dumpster boxes used for asbestos-containing waste material packaging and hauling, and all bags/containers of asbestos waste (including dumpster liners) must be labeled with an OSHA approved label.
12. Warning signs, which are visible to individuals nearby, must be used on vehicles loading and unloading asbestos-containing waste material into dumpsters or vehicles used to transport the material to the Division Landfill. The signs must conform with specifications in Appendix I.
13. For asbestos-containing waste material transported to landfill for disposal (excluding material covered by yearly, blanket ADVF):
 - a. A record of the shipment must be completed by filling out the ADVF.
 - b. A copy of the ADVF, including the copy signed by the Landfill Representative, must be retained for at least 2 years by the waste generator.
 - c. A copy of the ADVF, signed by the landfill representative, must be received by the generator(plant/department) within 35 days of the date the waste was accepted by the transporter. If the generator does not receive the signed copy of the ADVF, they should contact Environmental Operations immediately.
 - d. If a copy of the ADVF, signed by the Landfill Representative, is not received by the generator within 45 days of the date it was shipped to the landfill, a written report must be made to the Air Quality Division of the Department of Environmental Quality.

APPENDIX A

DEFINITIONS

ACTIVE WASTE DISPOSAL SITE

Any disposal site other than an inactive site.

ACTION LEVEL

An airborne concentration of asbestos of 0.1 fiber per cubic centimeter (f/cc) of air calculated as an eight (8)-hour time-weighted average.

ADEQUATELY WET

Sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material, then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wet. Once contained, water droplets formed inside the disposal containers will be sufficient evidence of being adequately wetted.

ASBESTOS

The asbestiform varieties of Serpentine (Chrysotile), Riebeckite (Crocidolite), Cummingtonite-Grunerite, Anthophyllite, and Actinolite-Tremolite are considered asbestos.

ASBESTOS-CONTAINING MATERIAL (ACM)

Material composed of asbestos of any type and in an amount greater than 1% by weight, either alone or mixed with other fibrous or non-fibrous materials.

ASBESTOS-CONTAINING WASTE MATERIAL (ACWM)

This term includes: filters from control devices, friable asbestos waste material, and bags or other similar packing contaminated with commercial asbestos. As applied to demolition and renovation operations, this term includes: RACM waste, materials contaminated with asbestos, and disposable equipment and clothing.

ASBESTOS MATERIAL

Asbestos or any material containing asbestos.

AUTHORIZED PERSONNEL

Any person authorized by the employer and required by work duties to be present in regulated areas.

CATEGORY I NONFRIABLE ACM

Asbestos-containing packing, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using polarized light microscopy (PLM).

CATEGORY II NONFRIABLE ACM

Any material excluding Category I nonfriable ACM, containing more than 1 percent asbestos as determined by PLM that, when dry cannot be crumbled, pulverized, or reduced to powder by hand pressure.

CLEAN ROOM

An uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.

COMPETENT PERSON

One who is capable of identifying existing asbestos, hazards, in the work place and who has the authority to take prompt corrective measures to eliminate them. The duties of the competent person include at least the following: establishing the negative-pressure enclosure, ensuring its integrity, and controlling entry to and exit from the enclosure; supervising any employee exposure monitoring required by the standard; ensuring that all employees working within such an enclosure wear the appropriate personal protective equipment, are trained in the use of appropriate methods of exposure control, and use the hygiene facilities and decontamination procedures specified in the standard; and ensuring that engineering controls in use are in proper operating condition and are functioning properly.

CUTTING

Penetrating with a sharp-edged instrument including sawing, but not including shearing, slicing, or punching.

DECONTAMINATION AREA

An enclosed area consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment contaminated with asbestos. The decontamination area may be adjacent and connected to the regulated area or located remotely. Workers must vacuum protective clothing, remove them and put on clean clothing before proceeding to the decontamination area if it is remotely located.

DEMOLITION

The wrecking or taking out of any load-supporting structural member of a facility together with any related handling, operations, or the intentional burning of any facility.

EMERGENCY DEMOLITION / RENOVATION OPERATION

A demolition or renovation operation that was not planned but results from a sudden, unexpected event that, if not immediately attended to, presents a safety or public health hazard, is necessary to protect equipment damage, or is necessary to avoid imposing an unreasonable financial burden. This term includes operations necessitated by non routine failures of equipment.

EMPLOYEE EXPOSURE

Exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

EQUIPMENT ROOM (CHANGE ROOM)

A contaminated room located within the decontamination area that is supplied with impermeable bags or containers for the disposal of contaminated protective clothing and equipment.

EXCURSION LIMIT

An airborne concentration of asbestos of 1.0 fiber per cubic centimeter of air (1 fiber/cc averaged over a 30 minute sampling period).

FACILITY

Any commercial, public, or industrial structure, installation, or building; any ship; and any active or inactive waste disposal site.

FACILITY COMPONENT

Any part of a facility including equipment.

FIBER

A particulate form of asbestos 3 micrometers or longer, with a length-to-diameter ratio of at least 3 to 1.

FRIABLE ASBESTOS MATERIAL

Any material containing more than 1 percent as determined using PLM, that, when dry can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos is less than 10 percent as determined by a method other than point counting by PLM, the asbestos content must be verified by point counting using PLM.

GRINDING

Reduce to powder or small fragments and includes mechanical chipping or drilling.

HIGH-EFFICIENCY PARTICULATE AIR (HEPA) FILTER

A filter capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometers in diameter or larger.

IN POOR CONDITION

The binding of the material is losing its integrity as indicated by peeling, cracking, or crumbling of the material.

INACTIVE WASTE DISPOSAL SITE

Any disposal site or portion of it where additional asbestos containing waste material has not been deposited within the past year.

LEAK-TIGHT

Solids or liquids cannot escape or spill out of . It also means dust-tight.

MANUFACTURING

The combining of commercial asbestos with any other material(s) and the processing of this combination into a product. Chlorine production is considered a part of manufacturing.

MINI-ENCLOSURE

An enclosure constructed of 6 mil polyethylene sheeting to restrict access to the area where small-scale, short duration asbestos maintenance or renovation work is to be performed. The enclosure must have a contiguous change room where workers vacuum off protective coveralls and remove them before leaving the work area.

NEGATIVE PRESSURE ENCLOSURE

An enclosure for large-scale long duration projects constructed of 6-mil polyethylene sheeting and equipped with a ventilation system (which discharges through a HEPA filter) capable of creating a negative pressure of 0.02 inches of water inside the enclosure. Where feasible, a decontamination area should be continuous to the enclosure and should be the only means of egress.

NONFRIABLE ASBESTOS-CONTAINING MATERIAL

Any material containing more than 1 percent asbestos as determined using PLM, that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

NONSCHEDULED OPERATIONS

Any individual renovation and/or demolition operation necessitated solely by the need for repair or maintenance of facility components, and involves a total of less than one cubic yard of RACM per operation. An operation cannot be artificially sub-divided into several smaller operations for the purpose of meeting the less than one cubic yard requirement.

PERMISSIBLE EXPOSURE LIMIT (PEL)

No employee shall be exposed to an airborne concentration of asbestos in excess of 0.2 fibers per cubic centimeter of air as an eight-hour time-weighted average (8 hr. TWA.)

PLANNED OPERATIONS

A demolition and/or renovation operation, or a number of such operations, in which the amount of friable asbestos material that will be removed or stripped within a given period of time can be predicted. Individual nonscheduled operations are included if a number of such operations can be predicted to occur during a given period of time based on operating experience.

REGULATED AREA

An area established by the employer to demarcate areas where airborne concentrations of asbestos exceed or can reasonably be expected to exceed the permissible exposure limit and/or the 1 fiber/cc short-term excursion limit. The regulated area may take the form of a temporary enclosure, or an area demarcated to restrict area and minimize the number of employees potentially exposed to asbestos.

REGULATED ASBESTOS-CONTAINING MATERIAL (RACM)

Friable asbestos material; Category I nonfriable AC that has become friable; Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading; Category II nonfriable ACM that has high probability of becoming or has become crumbled, pulverized, or reduced to powder by forces expected to act on the material in the course of demolition or renovation operations.

REMOVE

To take out RACM or facility components that contain or are covered with RACM from any facility.

RENOVATION

Altering a facility or one or more facility components in any way, including the stripping or removal of RACM from a facility component, that is to be returned or to remain in place. Operations in which load-supporting structural members are wrecked or taken out are considered demolitions.

REPAIR

Overhauling, rebuilding, reconstructing, or reconditioning of structures or substances where asbestos is present.

RESILIENT FLOOR COVERING

Asbestos-containing floor tile, including asphalt and vinyl floor tile, and sheet vinyl floor covering containing more than 1 percent asbestos as determined by polarized light microscopy.

SMALL-SCALE, SHORT-DURATION ACTIVITIES

The tasks such as, but not limited to: the removal of asbestos-containing insulation on pipes to repair; the removal of small quantities of asbestos-containing insulation on beams or above ceilings; the replacement of an asbestos-containing gasket on a valve or a flange; the installation or removal of a small section of DRY WALL material containing asbestos; or the installation of electrical conduits, pipe, or cable through or proximate to asbestos-containing materials.

SURFACTANTS

Chemicals added to a material (e.g. soaps, herbicides, paints, etc.) to improve its wetting ability.

VISIBLE EMISSIONS

Any emissions, which are visually detectable without the aid of instruments, coming from RACM or asbestos-containing waste material, or from any asbestos milling, manufacturing, or fabricating operation.

WASTE FROM ASBESTOS CONTROL DEVICES

Any waste material that is placed or collected in asbestos control equipment.

WASTE GENERATOR

Any owner or operator of a source whose act or process produces ACM.

WASTE SHIPMENT RECORD

The shipment document (ADVF) required to be originated and signed by the waste generator or the owner or operator of a demolition or renovation activity, used to track and substantiate the disposition of ACWM.

WET REMOVAL

The application of a wetting agent to asbestos or asbestos containing material prior to and during removal and/or stripping work.

WORKING DAY

Monday through Friday, including holidays that fall on any of the days Monday through Friday.

APPENDIX B

VISUAL EMISSION MONITORING METHOD

This method applies to the visual monitoring of each potential source of asbestos emissions from any manufacturing or fabricating facility, including air cleaning devices, process equipment, and buildings housing material processing and handling equipment, at least once per days during daylight hours for visible emissions to the outside air during periods of operation.

1. The log sheet included in Appendix C must be used to document the daily visual observations.
2. Both outside observation of sources of potential emissions (e.g. from building/structure, tanks/vessels, equipment vents, etc.), and inside observation for emissions directly emitted from the affected facility process.
3. The observer should select a position that provides a clear view of the potential emission points.
4. A position of a least 15 feet from the emission source is recommended. For outdoor locations, select a position where the sun is directly in back of point source if possible. For indoor observations, select a position where illumination is directly in back or over the source of potential source of emissions.
5. The observation must be made for at least 15 seconds per emission source.
6. During the observation period, continuously watch the emission source (condensed water vapor is not considered an emission).
7. The observation of intermittent or cyclic sources of potential emissions should coincide with that period of the process cycle.
8. Occasionally, the view of the potential emission source may be obscured due to atmospheric interferences (e.g., road dust, fog, smoke, etc.). When this situation occurs, the observation should be terminated, and the observer should clearly note this fact on the data form.

APPENDIX C

RECORD OF VISIBLE EMISSION MONITORING

The following instructions should be followed in filling out the visible Emission Monitoring Record Sheet (see attached copy).

1. Fill in date and time of each inspection.
2. Identify air cleaning device, process equipment, and buildings housing material processing and handling equipment.
3. Record presence (Yes or absence (No) of visible emissions observed, and corrective action taken to eliminate emissions if necessary. The monitoring must be a visual observation of at least 15 seconds per potential source of emissions.
4. Record daily hours of operation for each air cleaning device.
5. Individual performing visible emission monitoring must initial monitoring record.
6. Retain visible emission monitoring record sheet for at least 2 years.

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RECORD OF VISIBLE EMISSION MONITORING

[illegible]

APPENDIX D

AIR CLEANING DEVICE INSPECTION CHECKLIST

1. Air cleaning device designation or number _____
2. Date of inspection _____
3. Time of inspection _____
4. Is air cleaning device operating properly (yes/no) _____
5. Tears, holes, or abrasions in fabric filter (yes/no) _____
6. Dust on clean side of fabric filters (yes/no) _____
7. Other signs of malfunction or potential malfunctions
(yes/no) _____
8. Describe other malfunctions or signs of potential malfunctions.

9. Describe corrective action (s) taken.

10. Date and time corrective action taken _____
11. Inspected by:

_____ (Print/Type Name)	_____ Title	_____ Signature	_____ Date
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NOTE: Retain inspection checklist for at least 2 years.

APPENDIX E

NOTICE OF INTENTION FOR DEMOLITION OR RENOVATION

The following instructions should be followed in filling out the Notice of Demolition or Renovation (see attached copy) for the purpose of obtaining an ADVF.

1. Fill out the specified sections explained in Item #3 below in pencil and forward to Industrial Hygiene for completion and transmittal to the DEQ.
2. Sections numbered III, IV, V, VI, VII, VIII, IX, X and XI should be completed by the appropriate plant, building, or project associated Dow representative.
3. Section III: Complete this section by specifying the type of operation.
Section IV: Mark if asbestos is present or not.
Section V: Complete this section by specifying the plant or building name, and the telephone number of the Dow person closely associated with the job. If the job directly involves a building then information on it's size, number of floors, age, present use, and prior use must be provided.
Section VI: Specify whether a sample of the material was taken and I.D. analysis was performed or not.
Section VII: Under the column designated RACM, list the amount of asbestos-containing material being abated on the proper line. Place a check mark behind the unit of measurement in that portion of this section.
Section VIII: Specify the dates on which asbestos removal will start and will be completed.
Section IX: Specify the dates for the demolition or renovation work of which the asbestos removal is a part.
Section X: Write a brief description of the demolition or renovation work to be done.
Section XI: List the work practices and engineering controls (e.g. wet method, glove bag (s), plastic wrap, mini enclosure, total enclosure, etc.) that will be used to prevent emissions.
4. Forward the completed form to the Industrial Hygiene Department **18 - 20 days** prior to start of any work associated with the demolition and/or renovation (**Starting work** is considered to be any activity that would break up, dislodge, or similarly disturb asbestos material).

NOTIFICATION OF DEMOLITION AND RENOVATION

FORM AAC-2 REV 7/17/91
TELEPHONE (504)765-0219

# of ADVFs Requested	Parish #	Source #	ADVF #	
I. TYPE OF NOTIFICATION (O=Original R=Revised C=Cancelled):				
II. FACILITY INFORMATION (Identify owner, removal contractor, and other operator)				
OWNER NAME:				
Address:				
City:	State:	Zip:		
Contact:		Tel:		
REMOVAL CONTRACTOR:		La. Contractor's License #:	DEQ Supervisor #:	
Address:				
City:	State:	Zip:		
Contact:		Tel:		
OTHER				
Address:				
City:	State:	Zip:		
Contact:		Tel:		
III. TYPE OF OPERATION (D=Demo O=Ordered Demo R=Renovation E=Emer. Reno):				
IV. IS ASBESTOS PRESENT? (Yes/No)				
V. FACILITY DESCRIPTION (Include building name, number and floor or room number)				
Bldg. Name:		Fire Marshall Project #:		
Address:				
City:	Zip:	State:	Parish:	
Site Location:			Tel:	
Building Size:	# of Floors:	Age in Years:		
Present Use:		Prior Use:		
VI. PROCEDURE, INCLUDING ANALYTICAL METHOD IF APPROPRIATE, USED TO DETECT THE PRESENCE OF ASBESTOS MATERIAL:				
VII. APPROXIMATE AMOUNT OF ASBESTOS, INCLUDING: 1. Regulated ACM to be removed 2. Category I ACM Not Removed 3. Category II ACM Not Removed	RACM To Be Removed	Nonfriable asbestos material NOT TO Be Removed		Indicate Unit <u>Measurement</u> Below UNIT
		Cat I	Cat II	
Pipes				Ln Ft: Ln m:
Surface Area				Sq Ft: Sq m:
Vol RACM Off Facility Component				Cu Ft: Cu m:
VIII. SCHEDULED DATES ASBESTOS REMOVAL (MM/DD/YY) START:				COMPLETE:
IX. SCHEDULED DATES DEMO/RENOVATION (MM/DD/YY) START:				COMPLETE:

REMIT TO: DEQ/AIR QUALITY DIV. P.O. BOX 82135 BATON ROUGE 70884-2135

NOTIFICATION OF RENOVATION

(continued)

X. DESCRIPTION OF PLANNED DEMOLITION OR RENOVATION WORK, AND METHOD(S) TO BE USED:		
XI. DESCRIPTION OF WORK PRACTICES AND ENGINEERING CONTROLS TO BE USED TO PREVENT EMISSIONS OF ASBESTOS AT THE DEMOLITION AND RENOVATION SITE:		
XII. WASTE TRANSPORTER # 1:		
Name:		
Address:		
City:	State:	Zip:
Contact Person:		Telephone:
XII. WASTE TRANSPORTER # 2:		
Name:		
Address:		
City:	State:	Zip:
Contact Person:		Telephone:
XIII. WASTE DISPOSAL SITE:		
Name:		
Location:		
City:	State:	Zip:
Telephone:		
XIV. IF DEMOLITION ORDERED BY A GOVERNMENT AGENCY, PLEASE IDENTIFY THE AGENCY:		
Name:		Title:
Authority:		
Date of order (MM/DD/YY):		Date ordered to begin (MM/DD/YY):
XV. FOR EMERGENCY RENOVATIONS:		
Date and hour of emergency (MM/DD/YY):		
Description of the Sudden, Unexpected Event:		
Explanation of how the event caused unsafe conditions or would cause equipment damage (or an unreasonable financial burden):		
XVI. DESCRIPTION OF PROCEDURES TO BE FOLLOWED IN THE EVENT THAT UNEXPECTED ASBESTOS IS FOUND OR PREVIOUSLY NONFRIABLE ASBESTOS MATERIAL BECOMES CRUMBLER, PULVERIZED, OR REDUCED TO POWDER.		
XVII. I CERTIFY THAT AN INDIVIDUAL TRAINED IN THE PROVISIONS OF THIS REGULATION (40 CFR PART 61, SUBPART M) WILL BE ON-SITE DURING THE DEMOLITION OR RENOVATION AND EVIDENCE THAT THE REQUIRED TRAINING HAS BEEN ACCOMPLISHED BY THIS PERSON WILL BE AVAILABLE FOR INSPECTION DURING NORMAL BUSINESS HOURS. (Required 1 year after promulgation)		
(Signature of Owner/Operator)		(date)
XVII. I CERTIFY THAT THE ABOVE INFORMATION IS CORRECT.		
(Signature of Owner/Operator)		(date)

PURSUANT TO R.S. 40:1574 A&B, BE ADVISED THAT NO CONSTRUCTION OR RENOVATION CAN BEGIN UNTIL THE PLANS AND SPECIFICATIONS ARE REVIEWED BY THE OFFICE OF THE STATE FIRE MARSHAL OR IT IS DETERMINED BY THAT OFFICE THAT PLANS ARE NOT REQUIRED TO BE SUBMITTED.

APPENDIX F

ASBESTOS DISPOSAL VERIFICATION FORM (ADVF)

The following instructions should be followed in completing the Asbestos Disposal Verifications Form (see attached copy).

1. Instruction for Generator of asbestos-containing waste material:
 - a. An ADVF number and facility code will be assigned by the DEQ and will be located at the top of form.
 - b. Line 15 - list name of waste transporter (i.e., Dow Environmental Operations).
 - c. Line 16 - a project number will be assigned by DEQ for work for which the ADVF was issued.
 - d. Line 17 - list quantity of individual loads of asbestos-containing waste material transported to landfill.
 - e. Line 18 - list date of shipment for each load listed on line 17.
 - f. Line 19 - list the following disposal site information - Dow Chemical U.S.A., Louisiana Division, Block 80, Solid Waste Landfill.
 - g. Line 20 - list the date of final shipment of asbestos-containing waste material to landfill.
 - h. Line 21 - name of project associated Dow individual.
 - i. Line 22 - signature of individual listed on Line 21.
 - j. Remove green copy of multiple copy ADVF form.
 - k. Present remaining copies of ADVF to waste transporter on final shipment of waste material.
2. Instructions for Transporter of asbestos-containing waste material:
 - a. Insure all asbestos-containing waste material is in leak-tight, undamaged containers.
 - b. Insure Generator has filled out all items that must be completed before acceptance of ADVF.
 - c. Line 23 - list date of acceptance of ADVF.
 - d. Line 24 - list date of delivery to landfill.
 - e. Line 25 - name of individual who delivered asbestos-containing waste material to landfill.
 - f. Signature of individual listed on Line 25.
 - g. Remove pink copy of multiple copy ADVF form.
 - h. Present remaining copies of ADVF to landfill responsible personnel.

APPENDIX F (continued)

3. Instruction for Landfill Operator for asbestos-containing waste material.
- a. Insure all asbestos-containing waste material is in leak-tight, undamaged containers.
 - b. Check expirations date (line 4) of ADVF. Expired ADVFs must not be accepted.
 - c. Line 27 - list total quantity of asbestos-containing waste material received for work covered by the ADVF.
 - d. Line 28 - list date material is buried. Material must be buried as per DEQ approved procedures.
 - e. Line 29 - name of individual receiving last shipment of waste material for the removal work covered by the ADVF.
 - f. Signature of individual listed on line 29.
 - g. Remove gold copy of multiple copy of ADVF form and return it to generator listed on line 21.
 - h. Retain yellow copy of ADVF.
 - i. Mail original completed copy (white) of ADVF to the DEQ (address located on top of form).

APPENDIX F

State Of Louisiana
Department of Environmental Quality
Air Quality Division
P.O. Box 44096
Baton Rouge, LA 70804-4096

ADVF #
Facility Code: _____

ASBESTOS DISPOSAL VERIFICATION FORM

DEPARTMENT OF ENVIRONMENTAL QUALITY

1) OWNER'S NAME & MAILING ADDRESS-ZIP

3)ISSUE DATE

4)EXPIRATION DATE

2) OWNER'S PHONE (_____) _____

5) CONTRACTOR'S NAME & MAILING ADDRESS-ZIP

7)PROJECT START DATE

8)PROJECT COMPLETE DATE

6) CONTRACTOR'S PHONE (_____) _____

9) PROJECT LOCATION & MAILING ADDRESS-ZIP

11)PROJECT START DATE

12)PROJECT COMPLETE DATE

10) CONTRACTOR'S PHONE (_____) _____

13) PRINTED /TYPED NAME

14) SIGNATURE

OWNER/OPERATOR

DATE

15) WASTE TRANSPORTER

16)PROJ# 17)QUAN. 18)COMPLETED

19) DISPOSAL SITE

20) DATE SHIPPED

21) PRINTED/TYPED NAME

22) SIGNATURE

TRANSPORTER

23) DATE RECEIVED

24) DATE DELIVERED

25) PRINTED/TYPED NAME

26) SIGNATURE

LANDFILL

27) QUANTITY RECEIVED

28) DATE BURIED

29) PRINTED/TYPED NAME

30) SIGNATURE

31) SPECIAL CONDITIONS OR COMMENTS:

COPIES: WHITE - DEQ; GREEN - OWNER; YELLOW - LANDFILL; PINK - TRANSPORTER; GOLD - OWNER

APPENDIX G

PUBLIC HEALTH ORGANIZATIONS

The following organizations provide smoking cessation information and program material:

1. *Office of Cancer Communications*
National Cancer Institute
National Institutes of Health Building 31, Room 10A24
Bethesda, Maryland 20892
2. *American Cancer Society*
3340 Peachtree Road, NE
Atlanta, Georgia 30062 (404) 320-3333
3. *American Heart Association*
7320 Greenville Avenue
Dallas, Texas 75231 (214) 750-5300
4. *American Lung Association*
1740 Broadway
New York, NY 10019 (212) 245-8000
5. *Office on Smoking and Health*
U.S. Department of Health and Human Services
5600 Fischers Lane
Park Building, Room 110
Rockville, Maryland 20857

APPENDIX H

WARNING LABEL FOR BAGS / CONTAINERS

In order to communicate the hazards of asbestos-containing waste material in plastic bags and containers, labeling must be done in accordance with the following requirements:

1. OSHA approved warning labels must be affixed to all bags, containers, or wrapped packages of asbestos-containing waste material.
2. Labels and lettering must be of sufficient size and contrast so as to be readily visible and legible.
3. Labels must display the following legend:

Labels on bag/container/wrapped packages:

**DANGER
CONTAINS ASBESTOS FIBERS
AVOID BREATHING DUST
CANCER AND LUNG DISEASE HAZARD**

APPENDIX I

WARNING SIGN FOR VEHICLE LOADING/UNLOADING

In order to communicate the hazards of asbestos-containing waste material during the loading/unloading operation, the transporting vehicle must comply with the following requirements:

1. Vehicles used to transport asbestos-containing waste material must be marked during the loading and unloading of the waste.
2. Vehicle marking must be visible and be displayed in such a manner and location that a person can easily read the legend.
3. The sign must be 20" X 14" with the spacing between any two lines at least equal to the height of the upper of the two lines.
4. The markings must display the following legend:

DANGER

ASBESTOS DUST HAZARD

CANCER AND LUNG DISEASE HAZARD

Authorized Personnel Only