



State of Oregon Department of Environmental Quality

Informational Paper: Nonfriable Asbestos Disposal Requirements

Asbestos 2018 rulemaking
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Introduction

The Oregon Department of Environmental Quality reviewed asbestos rules in Oregon Administrative Rule 340 Division 248 under the authority of Oregon Revised Statute 468A.700-.760. This review provides stakeholders and DEQ with an opportunity to evaluate and clarify regulations and standards for asbestos-related activities, where a potential for exposure to asbestos fibers exists. This paper examines Division 248 rules for Nonfriable Asbestos Disposal Requirements to reduce the potential of nonfriable asbestos-containing material and asbestos-containing waste material that can become friable when handled, transported or disposed of at disposal transfer stations; material recovery facilities; and landfills permitted or not permitted to accept asbestos-containing material and asbestos-containing waste material.

Background

The Oregon Environmental Quality Commission adopted rules in January 2002 to clarify friable and nonfriable requirements for asbestos disposal. The clarification was driven by unclear rule language that existed prior to 2002. The 2002 adopted rules for nonfriable asbestos disposal requirements are similar to the friable disposal requirements in rule, and are as follows:

340-248-0290 Nonfriable Asbestos Disposal Requirements

Work practices and procedures for packaging, storing, transporting, and disposal of nonfriable asbestos-containing waste material: The owner or operator of a facility or an activity covered under the provisions of OAR 340-248-0205 through OAR 340-248-0290 and any other source of nonfriable asbestos-containing waste material must meet the following standards:

- (1) There may be no visible emissions to the atmosphere while collecting, processing, packaging, transporting, or disposing of any nonfriable asbestos-containing waste material that is generated by such source.
- (2) All nonfriable asbestos-containing waste materials must be adequately wetted to ensure that they remain wet until deposited at an authorized landfill, and either:
 - (a) Processed into nonfriable pellets or other shapes; or
 - (b) Packaged in leak-tight containers that allow the nonfriable asbestos-containing waste to remain adequately wet until deposited at an authorized landfill. Such containers must be marked as follows:
 - (A) The name of the asbestos waste generator and the location where the waste was generated; and
 - (B) A warning statement:

DANGER
ASBESTOS-CONTAINING MATERIAL

- (3) Nonfriable asbestos-containing roofing materials that are fully encapsulated in a petroleum-based binder and meet the conditions in OAR 340-248-0250(2)(c) are exempt from 340-248-0290(2).
- (4) The interim storage of nonfriable asbestos-containing waste material must protect the waste from tampering by unauthorized persons. The interim storage of nonfriable asbestos-containing waste material is the sole responsibility of the contractor or the owner or operator performing the nonfriable asbestos abatement project.
- (5) All nonfriable asbestos-containing waste material must be deposited as soon as possible by the asbestos waste generator at:
 - (a) A waste disposal site authorized by the Department and operated in accordance with this rule; or
 - (b) A Department-approved site that converts asbestos-containing waste material into nonasbestos (asbestos-free) material according to the provisions of OAR 340-248-0230, Asbestos to Nonasbestos Conversion Operations.
- (6) Persons disposing of nonfriable asbestos-containing waste material must notify the landfill operator of the type and volume of the waste material and obtain the approval of the landfill operator before bringing the waste to the disposal site.
- (7) For each nonfriable waste shipment, the waste generator must provide the generator information contained in OAR 340-248-0280(7).
- (8) For the transportation of nonfriable asbestos-containing waste material the waste generator must follow the provisions of OAR 340-248-0280(8).
- (9) After initial transport of nonfriable asbestos-containing waste material, the asbestos waste generator must follow the provisions of OAR 340-248-0280(9).
- (10) Each owner or operator of an active nonfriable asbestos-containing waste disposal site must meet the provisions of OAR 340-248-0280(10).
- (11) The owner or operator of an inactive nonfriable waste disposal site must meet the provisions of OAR 340-248-0280(11).
- (12) Rather than meet the requirements of this rule, an owner or operator may use alternative packaging, storage, transport, or disposal methods after receiving written approval from the Department.

In 2002, the nonfriable asbestos disposal requirements were revised with stakeholder input. The EQC adopted the recommended revision below:

OAR 340-248-0290 Nonfriable Asbestos Disposal Requirements

Work practices and procedures for packaging, storing, transporting, and disposal of nonfriable asbestos-containing waste material: The owner or operator of a facility or an activity covered under the provisions of OAR 340-248-0205 through 340-248-0290 and any other source of nonfriable asbestos-containing waste material must meet the following standard:

- (1) Any waste that contains nonfriable asbestos material must be handled and disposed of using methods that will prevent the release of airborne asbestos-containing material.
- (2) Rather than meet the requirements of this rule, an owner or operator may use alternative packaging, storage, transport, or disposal methods after receiving written approval from the Department.

DEQ and stakeholders developed an Internal Management Directive¹ for nonfriable ACWM in 2006 following the revised 2002 rulemaking. The practices in the IMD are used by DEQ to evaluate Special Waste Management Plans provided by transfer stations and material recovery facilities. The Plans support the adequate management of ACWM that inadvertently arrives at the disposal sites, because the rules revised in 2002 did not provide for nonfriable ACM that becomes friable in transportation or when tipped at disposal facilities. DEQ developed an asbestos Special Waste Management Plan template for disposal facilities in an attempt to streamline practices for the plans such as load screening and managing inadvertently tipped asbestos-containing loads. The 2006 IMD is being reviewed for practical use for large and small facilities and is undergoing final internal review before the release to disposal sites in 2017. The current IMD practices are summarized below and are provided in Appendix A.

1. Include training for facility personnel to recognize common friable and nonfriable ACWM, procedures for handling ACWM, inspecting incoming loads for the presence of ACWM, and emergency response procedures for handling suspect ACWM;
2. Gate operations that include signage indicating that ACWM requires special handling, measures to identify if a load was generated from renovation or demolition projects and if so, was a survey performed to identify materials, procedures for requesting copies of asbestos surveys or DEQ Waste Shipment Reports, procedures for visual inspections of incoming loads for the presence of ACWM, and methods for inspecting the adequacy of packaging for friable ACWM;
3. Management practices for bagged or contained ACWM that include procedures for supervised off-loading of ACWM that prevent any compromise to the packaging and release of asbestos fibers provided in OAR 340-248-0280(10)(a)(A), procedures for notifying DEQ of improperly packaged or uncovered ACWM provided in OAR 340-248-0280(10)(a)(D), and procedures for notifying the landfill of the load if containing ACWM;
4. Management practices for unbagged or uncontained **friable** ACWM that include procedures to for safely isolating, wetting, and containing the suspect ACWM, and having the load tested and abated by a licensed abatement contractor;
5. Management practices for unbagged or uncontained **nonfriable** ACWM that include procedures for delineating the extent of suspected ACWM that needs to be segregated from other materials for processing, minimizing impact to the ACWM from mechanical handling, moving ACWM to disposal containers as quickly as possible, covering ACWM as quickly as possible and a description of the types of cover to be used, and notifying the landfill of the load containing ACWM prior to the load being transported to the landfill for disposal; and
6. Procedures for handling materials in the event of an operational shut down or interruption to visually inspect stored materials for the presence of ACWM, for handling identified ACWM in stored materials, and designated storage locations that do not interfere with other public access to the facility or allow public users to have direct access to stored materials.

Program guidance was provided in 2014 following the IMD in 2006, for two common nonfriable asbestos-containing materials; “How to Remove Nonfriable Vinyl Asbestos Floor Tiles” and, “How to Remove Nonfriable Cement Asbestos Materials”. These guidance documents provide practices for

¹ DEQ Internal Management Directives: Managers at DEQ occasionally issue internal management directives to staff, which describe expectations for how employees should implement various components of environmental programs. These directives are not binding on third parties, and staff may deviate from an IMD, either in accordance with the circumstances specified in an IMD, or as appropriate with approval from a program manager.

packaging, removal, handling and disposal of ACM during construction, remodeling, and demolition. DEQ demonstrates through these documents, ensuring proper removal of nonfriable materials at the generation site avoids all issues related to nonfriable ACM that become friable. For example, the guidance is taken from OAR 340-248-0280 for Friable Asbestos Disposal Requirements and describes placing the nonfriable asbestos-containing material in leak-tight containers marked with the warning statement “DANGER ASBESTOS-CONTAINING MATERIAL” with the use of burlap bags or a cardboard box as a liner inside the leak-tight containers to minimize rips and tears from handling at the generation site or at the disposal facility. The documents are provided in Appendix B.

Nonfriable disposal requirements in practice

The costs to permitted and non-permitted disposal facilities increase when they manage disposal loads of suspect ACM. The ability and responsibility for disposal facility operators to recognize and ensure proper disposal of ACWM can vary among disposal facilities, statewide, making ACM procedures at disposal facilities inconsistent and potentially harmful to the public and disposal facilities personnel when suspect ACWM is not identified. Disposal facilities frequently hire an AHERA² accredited inspector to survey suspect loads and certified asbestos abatement contractors to clean up a site where asbestos is identified. In some rural areas of the state, transfer stations may not have personnel onsite to monitor incoming loads of ACWM, increasing the potential for construction materials with ACWM to be left in a transfer trailer going to a landfill.

Disposal facilities in some areas of the state are attempting to minimize the potential for releasing asbestos fibers into the air when construction loads are brought to the facility with suspect ACM. For example, Metro’s disposal facilities, with input from DEQ has developed requirements for handling construction loads with suspect ACMs through Metro’s updated Special Waste Management Plan and waste acceptance screening procedures. The plans will help Metro facilities prevent the acceptance of ACMs and demonstrate compliance with Metro’s solid waste transfer station permit that prohibits their disposal facilities from accepting materials that contain asbestos. Metro’s procedures include wetting down, isolating, testing and properly abating and disposing of ACM. Metro transfer station employees can screen loads of construction, remodeling, and demolition debris for potential ACM, and they can require documentation of analytical testing to certify that all tested sample results contain one percent or less asbestos by weight, the threshold for what is considered ACM under OAR 340-248-0010(8). Metro’s customers must certify that their loads of construction, remodeling, and demolition debris are asbestos-free by completing a Metro form. In addition to compliance with its DEQ permit, Metro’s updated procedures are designed to reduce the health risks of customers and workers that are associated with exposure to asbestos fibers.

Oregon landfills authorized to accept ACM and ACWM are shown in Table 1 below. In most cases, the nonfriable ACWM requirements at these landfills are as rigorous or are similar to requirements for friable ACWM provided in OAR 340-248-0280 Friable Asbestos Disposal Requirements, even though this is not required in OAR 340, Division 248.

² AHERA means Asbestos Hazard Emergency Response Act

Table 1. Oregon authorized disposal facilities; requirements for ACWM

Landfill	County	Friable	Nonfriable
Short Mountain Landfill	Lane	OAR 340-248-0280*	ACM and ACWM is treated standard garbage
Brown's Island Demolition Landfill	Marion	OAR 340-248-0280	OAR 340-248-0280
Coffin Butte Landfill	Benton	OAR 340-248-0280	OAR 340-248-0280
Dry Creek Landfill	Jackson	OAR 340-248-0280	OAR 340-248-0280
Roseburg Landfill	Douglas	OAR 340-248-0280	OAR 340-248-0280
Baker City Landfill	Baker	OAR 340-248-0280	OAR 340-248-0280 Ops Plan, Section 5.6
Chemical Waste Management Landfill (WM)	Gilliam	OAR 340-248-0280	
Columbia Ridge Arlington Landfill (WM)	Gilliam	40 CFR 61.154	
Crook County Landfill	Crook	OAR 340-248-0280	Permit section 9.10 directs nonfriable to be handled per OAR 340-248
Finley Buttes Landfill	Morrow	OAR 340-248-0280	OAR 340-248-0280
Klamath Falls Landfill	Klamath	OAR 340-248-0280	OAR 340-248-0280
Knott Landfill Recycling	Deschutes	OAR 340-248-0280	OAR 340-248-0280 Ops Plan Section 5.1.3
Wasco County Landfill	Wasco	OAR 340-248-0280	OAR 340-248-0280
Hillsboro Landfill (WM)	Washington	OAR 340-248-0280	OAR 340-248-0280

*OAR 340-248-0280 Friable Asbestos Disposal Requirements

Owners or operators³ and contractors implement similar work practices for friable and nonfriable ACM. DEQ interviewed four statewide certified asbestos abatement contractors about the costs and work practices associated with nonfriable asbestos abatement projects. All of the contractors interviewed, at a minimum, package nonfriable ACM as friable ACM using the standards in OAR 340-248-0280 Friable Asbestos Disposal Requirements, and have implemented this work practice for some time. The contractors provided several reasons including:

³ [OAR 340-248-0010\(33\)](#) "Owner or operator" means any person who owns, leases, operates, controls or supervises a facility being demolished or renovated or any person who owns, leases, operates, controls, or supervises the demolition or renovation operation, or both.

1. Streamlines the work processes and ensures all abatement work is held to the highest standards in rule [as friable ACM] at all times.
2. Removes guessing by construction site staff about which work practices to apply to friable or nonfriable ACM.
3. Similar work practices for disposal of nonfriable and friable are to provide safer transport of ACMs and to be more efficient and cost-effective, because the workers can place all ACMs into one drop box. For example, packaging nonfriable cement asbestos board as friable is a common practice, because nonfriable cement asbestos board becomes friable when it breaks apart during transportation.
4. Ensures a safer work environment for employees, neighbors, and disposal facility workers.

Two of the four contractors do not always use friable disposal requirements for nonfriable built-up roofing. This is because the rules provide an exemption in OAR 340-248-0250(2)(f) Asbestos Abatement Project Exemptions from OAR 340-248-0110 through 340-248-0280 for projects involving the removal of mastics and roofing products that are fully encapsulated with a petroleum-based binder and are not hard, dry, brittle, or made friable. Three of the contractors specifically mentioned cement asbestos board as a material that is consistently packaged as friable because the material breaks apart in transport and they want to avoid that material arriving at the landfill in friable pieces. One contractor provided practices for cement water pipes as an exception to packaging nonfriable ACM as friable ACM because of cost. Alternatively, one of the contractors interviewed individually rolls cement water pipes into plastic to diminish the potential of the material becoming friable when handling and transporting, and the cost was not an issue. These contractors understand that the project costs can increase significantly when disposal facility personnel identify suspect ACM in construction loads and where the contractor may become required to properly package ACM at the disposal facility, and may be responsible to pay DEQ fees and penalties for improper disposal.

Municipal solid waste coming into Oregon disposal facilities from out-of-state

Forty percent of the total solid waste disposed of in Oregon comes from other states such as Washington and California. Evaluating disposal requirements for nonfriable ACWM could potentially lead out-of-state jurisdictions to use different disposal sites for their ACWM and the potential loss of revenue for the Oregon disposal facilities.

Washington clean air agencies and Colorado

Some Washington clean air agencies and Colorado have requirements for the disposal of ACWM that are often similar for friable and nonfriable ACM. The Southwest Clean Air Agency⁴ in Washington State for Clark, Cowlitz, Lewis, Skamania and Wahkiakum counties does not distinguish between friable and nonfriable ACWM for disposal requirements. SWCAA rule 476-070 Disposal of Asbestos-Containing Waste Material, provides that no person can work on an asbestos project unless certain procedures are employed during the collection, processing, packaging, transporting, or disposal of any ACWM are followed. SWCAA requires that all ACWM must be adequately wet and to mix asbestos waste from control devices, vacuum systems, or local exhaust ventilation and collection systems with water to form a slurry. After wetting, seal all ACWM in leak tight containers or wrapping to ensure that they remain adequately wet when deposited at a waste disposal facilities. Each container with asbestos must have a warning sign as specified by the Washington State Department of Labor and Industries or the Occupational Safety and Health Administration. The containers are required to be marked with the date the material was collected for disposal, the name of the waste generator, the name and affiliation of the certified asbestos supervisor, and the location at which the waste was generated, and ensure that the

⁴ Southwest Clean Air Agency, Washington State (Clark, Cowlitz, Lewis, Skamania, Wahkiakum Counties)

exterior of each container is free of all asbestos residue; and exhibit no visible emissions during any of the operations required by the rule.

Spokane Regional Clean Air Agency⁵ in Washington State, rule section 9.09 for Disposal of Asbestos-Containing Waste Material does not distinguish between friable and nonfriable when it comes to disposal. The rule provides that any person who disposes of ACWM must maintain waste shipping records beginning prior to transport, and provide a copy of the waste shipment record to the disposal facilities owner or operator at the time the ACWM is delivered.

Puget Sound Clean Air Agency⁶ in Washington State for King, Kitsap, Pierce, and Snohomish counties provides rules in section 4.07 for Disposal of Asbestos-Containing Waste Material and does not distinguish between friable and nonfriable ACWM and are similar to Spokane's Regional Clean Air Agency.

Colorado state Department of Public Health and Environment⁷ requires all ACWM that includes, but is not limited to, asbestos waste from control devices, friable ACWM, disposable equipment and clothing, and bags or other similar packaging contaminated with commercial asbestos. If the ACM have been rendered friable, they must be disposed of as friable ACWM.

Federal regulations

The federal National Emission Standards for Hazardous Air Pollutants⁸ for asbestos regulate asbestos abatement and disposal. DEQ does not have NESHAP delegation, but strives to be as stringent as the federal regulations. NESHAP imposes the same disposal requirements on both friable and nonfriable ACM. The federal regulations provide an exemption for Category I nonfriable waste that has not been subject to sanding, grinding, cutting, or abrading. Relevant definitions from the NESHAP are provided below.

Regulated asbestos-containing material (RACM) means (a) Friable asbestos material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart.

Category I nonfriable asbestos-containing material (ACM) means asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy.

Category II nonfriable ACM means any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos as determined using the methods specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

⁵ Spokane Regional Clean Air Agency, Washington State (Spokane County)

⁶ Puget Sound Clean Air Agency, Washington State (King, Kitsap, Pierce, Snohomish Counties)

⁷ Colorado Department of Public Health and Environment Regulation No. 8 Part B – Asbestos

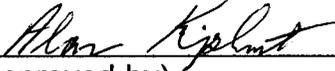
⁸ National Emissions Standard for Hazardous Air Pollutants (NESHAP) <https://www.epa.gov/asbestos/asbestos-laws-and-regulations>

Appendix

Appendix A: IMD for Management of Asbestos Containing Waste Material at Permitted Solid Waste Transfer Stations and Material Recovery Facilities, 2006

Directive

Management of Asbestos Containing Waste Material at Permitted Solid Waste Transfer Stations and Material Recovery Facilities


 (Approved by)

3/1/06
 (Date Approved)

Scope: Describes the management of Asbestos Containing Waste Material (ACWM) to be addressed in Special Waste Management Plans for solid waste transfer stations (TSs) and material recovery facilities (MRFs). (Note: This Management Directive does not address either federal or state regulations for employee workplace safety under OSHA. Furthermore, compliance with the best management practices and any Special Waste Management Plan approved by the department does not necessarily imply that the plan meets OSHA requirements.)

Purpose/Need: Currently, TSs and MRFs are not permitted to accept friable ACWM; nevertheless, ACWM, both friable and nonfriable, sometimes arrives at TSs or MRFs and must be safely managed for transport to a landfill. Special Waste Management Plans for TSs or MRFs do not adequately address ACWM that occasionally arrives at these facilities.

Handling procedures for all ACWM should be included in Special Waste Management Plans to protect human health and the environment from exposure to asbestos fibers and to comply with solid waste permitting rules. This directive provides guidance for evaluating the adequacy of Special Waste Management Plans for ACWM at TSs and MRFs.

Legal Authority:

Solid waste rules at OAR 340-093-0190 (1)(e) require permitted solid waste disposal facilities that handle ACWM to include provisions for special handling of these wastes in Special Waste Management Plans (or obtain other Department approvals). The Department requires these management practices to comply with the practices described in Oregon's asbestos rules, OAR chapter 340, division 248 where applicable.

The asbestos rules in OAR chapter 340, division 248 govern asbestos milling, manufacturing, fabricating, abatement, disposal, and other situations where a potential for exposure to asbestos fibers exists, *except as those activities are exempt from regulation*. OAR 340-248-0250(5) exempts ACWM handled and disposed of in accordance with a solid waste permit issued under ORS 459 from the prohibition of open accumulation of friable asbestos material or ACWM in OAR 340-248-0205(1).

The following definitions are used in this guidance:

Asbestos containing waste material means any waste that contains asbestos tailings or any commercial asbestos, and is generated by a source subject to OAR 340-248-0205 through 340-248-0290. This term includes, but is not limited to, filters from control devices, asbestos abatement project waste, bags or containers that previously contained commercial asbestos. OAR 340-248-0010(12).

Disposal site means land and facilities used for the disposal, handling, treatment or transfer of or energy recovery, material recovery and recycling from solid wastes.... OAR 340-093-030 (30)

Friable asbestos material means any asbestos-containing material that hand pressure can crumble, pulverize or reduce to powder when dry. OAR 340-248-0010(25)

Nonfriable asbestos material means any asbestos-containing material that cannot be crumbled, pulverized, or reduced to powder by hand pressure. OAR 340-248-0010(31)

Open accumulation means any accumulation, including interim storage of friable asbestos material or asbestos-containing waste material other than material securely enclosed and stored as required by this division. OAR 340-248-0010(32).

Discussion:

ACWM should be identified and properly managed at a construction or demolition site before delivery to a solid waste disposal facility. Usually, properly managed ACWM is transported directly to a landfill, but occasionally it goes through a TS.

Transfer Stations and MRFs may also receive ACWM (friable and nonfriable) that has not been properly packaged and identified, typically in construction and demolition/dry waste loads. This material usually arrives at a facility in mixed loads and is dumped on the floor along with other waste material. Facilities that accept dry waste loads will often sort the loads for recyclable materials. Sorting occurs in a variety of ways. Often, large materials such as wood or concrete are removed mechanically. If further sorting occurs, for cardboard for example, material is picked by hand or on a pick line. The non-recyclable waste materials are moved along the waste disposal side of the process and placed in a disposal container for transfer to a disposal site.

Any friable or suspected friable ACWM spotted in the waste pile or pick line is handled by stopping operations, isolating the material, wetting it, covering it, and abating it through a licensed abatement contractor in accordance with the facility Emergency Operations provisions of the Special Waste Management Plan. Nonfriable material is moved along the waste disposal portion of the system with other waste materials,

carefully handled to avoid breaking, and placed in a container for transfer to a disposal site.

These procedures are appropriate, but the best management practices described in this directive will help minimize exposure to fibers. In addition, management practices for all ACWM should be addressed in Special Waste Management Plans to comply with Department rules.

Directive: The Department will require Special Waste Management Plans in all SW permits issued to TSs and MRFs to include procedures for handling all types of ACWM. Plans should be tailored to the particular operations, equipment, and processes for each facility. This directive provides guidance for evaluating the adequacy of Special Waste Management plans for ACWM.

Best Management Practices for ACWM

Special Waste Management Plans for handling ACWM should address the following:

Training: A description of an on-going, annual training program for appropriate facility personnel that includes:

- Recognition training for common friable and nonfriable ACWM.
- Procedures for handling ACWM.
- Procedures for inspecting incoming loads for presence of ACWM.
- Emergency Response Procedures for handling suspect friable ACWM.

Gate Operations: Measures to discourage delivery of ACWM to the facility and to identify ACWM that arrives:

- Signage indicating ACWM requires special handling at the facility and educational material regarding proper handling and disposal of ACWM.
- Measures to determine whether a load originated from a renovation or demolition project, and if so, whether an asbestos survey was performed to identify the nature of the building materials.
- Procedures for requesting copies of asbestos surveys or DEQ Waste Shipment Report (ASN-4) when appropriate.
- Procedures for visually inspecting incoming loads, particularly dry waste loads, for the presence of ACWM.
- Methods for inspecting adequacy of packaging for friable ACWM.

Management practices for bagged/contained (friable and nonfriable) ACWM:

- Procedures for supervised off-loading of ACWM that prevent any compromise to packaging/containers and release of asbestos fibers. OAR 340-248-0280 (10)(a)(A).

- Procedures for notifying the Department of improperly packaged or uncovered ACWM. OAR 340-248-0280(10)(a)(D).
- Procedures for notifying the landfill of the load containing the ACWM prior to the load being shipped to the landfill for disposal.

Management practices for unbagged/uncontained friable ACWM:

- Procedures for safely isolating, wetting and containing the material and having it tested and abated by a certified contractor.

Management practices for unbagged/uncontained nonfriable ACWM:

- Procedures for delineating the extent of suspected ACWM that needs to be segregated from material for processing.
- Procedures for minimizing impact to the ACWM from mechanical handling.
- Procedures for minimizing breakage of ACWM in order to prevent asbestos fiber emissions.
- Procedures for moving ACWM to disposal container as quickly as possible to minimize disturbance or degradation.
- Procedures for covering ACWM as quickly as possible to prevent escape of fibers and dust and a description of the types of cover to be used.
- Procedures for notifying the landfill of the load containing the ACWM prior to the load being shipped to the landfill for disposal.

Procedures for handling materials in the event of an operational shut down or interruption.

- Procedures for visually inspecting stored materials for the presence of ACWM.
- Procedures for handling identified ACWM in stored materials in accordance with this directive.
- Designation of a storage location that does not interfere with other public access to the facility or allow public users to have direct access to stored materials.

Implementation: The IMD will be effective immediately upon approval. (See implementation plan for this directive).

Lead Worker: Pat Vernon

(Revised 2/28 epv)

Appendix B: How to Remove Nonfriable Vinyl Asbestos Floor Tiles and How to Remove Nonfriable Cement Asbestos Materials

Asbestos Program

How to Remove Nonfriable Vinyl Asbestos Floor Tiles

A Guide for Meeting DEQ Rules

Purpose

The Department of Environmental Quality (DEQ) regulates the removal, handling and disposal of asbestos-containing materials during construction, remodeling, and demolition. This document provides guidance for removing nonfriable vinyl asbestos floor tiles (VAT).

Before you start

Contact one of the DEQ regional offices (see contact information to the right) for information on complying with Oregon's asbestos program regulations.

If the project is taking place in a school (K-12), you must comply with the Asbestos Hazard Emergency Response Act (AHERA) rules from the U.S. Environmental Protection Agency (EPA). Contact the EPA's regional office at 800-424-4372 for current rule and policy information.

Oregon Occupational Safety and Health Administration (OR-OSHA) also has rules for working with asbestos-containing materials. Contact OR-OSHA at 503-378-3272 for current rule and policy information.

How to determine if a material contains asbestos

The only way to determine if a material contains asbestos is to take a sample and have it analyzed by an accredited laboratory. Vinyl asbestos floor tile can be assumed to contain asbestos and should be handled appropriately.

What are vinyl asbestos floor tiles?

Vinyl floor tiles, both 9" x 9" and 12" x 12" in size, often contain asbestos. The vinyl acts as a binder that holds the asbestos fibers within a solid matrix. This will prevent asbestos fibers from being released easily, unless mishandled, damaged, or in badly worn condition. In most cases, vinyl floor tiles are considered nonfriable.

Vinyl floor tiles should not be confused with sheet vinyl flooring that can have an asbestos backing. Sheet vinyl products are always considered friable and the regulations for removing friable asbestos-containing materials outlined below must be followed.

Removing nonfriable asbestos-containing materials

The removal of nonfriable asbestos-containing materials in good condition is exempt from some DEQ rules. You **do not** need to be a DEQ licensed asbestos contractor or a DEQ certified asbestos worker to do nonfriable asbestos removal. If you remove vinyl asbestos floor tiles following this guide, they should remain in a nonfriable condition.



State of Oregon
Department of
Environmental
Quality

Asbestos Program

www.oregon.gov

Contact Information:

Clackamas, Clatsop, Columbia, Multnomah, Tillamook and Washington Counties, call the **Northwest Region – Portland Office** at 503-229-5982, 503-229-5364 or 800-452-4011.

Benton, Lincoln, Linn, Marion, Polk and Yamhill Counties, call the **Western Region – Salem Office** at 503-378-5086 or 800-349-7677.

Jackson, Josephine and Eastern Douglas Counties, call the **Western Region – Medford Office** at 541-776-6107 or 877-823-3216.

Coos, Curry and Western Douglas Counties, call the **Western Region – Coos Bay Office** at 541-269-2721, ext. 222.

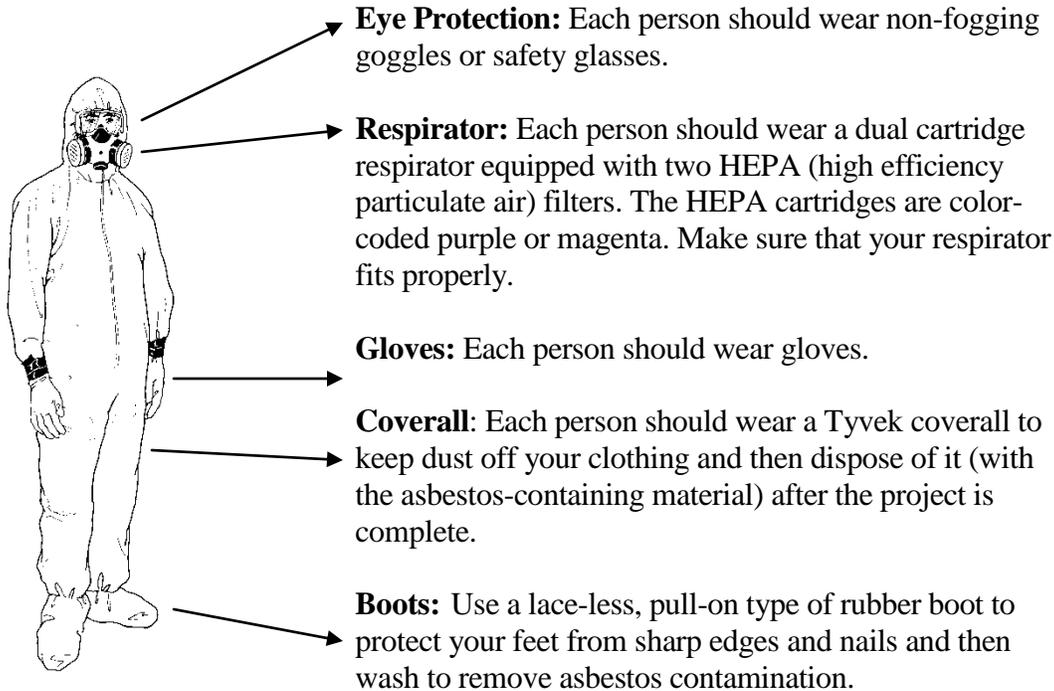
Crook, Deschutes, Harney, Hood River, Jefferson, Klamath, Lake, Sherman and Wasco Counties, call the **Eastern Region – Bend Office** at 541-633-2019 or 866-863-6668.

Baker, Gilliam, Grant, Malheur, Morrow, Umatilla, Union, Wallowa and Wheeler Counties, call the **Eastern Region – Pendleton Office** at 541-278-4626 or 800-304-3513.

Lane County, call the **Lane Regional Air Protection Agency** at 541-736-1056.

Last Updated: 3/31/14

Suggested safety equipment



Tools needed

- Water sprayer, garden type or spray bottle, or a garden hose with spray nozzle
- 3 to 6-mil thick plastic sheeting
- Wide putty knives, paint scraper or flat floor scraper
- Leak-tight containers, such as plastic bags, barrels or plastic wrapping
- Burlap bags or cardboard boxes

The work will be difficult

Even under the best conditions these projects are physically demanding and potentially dangerous. The following are some of the problems you will be faced with:

- Breathing through a respirator is difficult and places extra stress on the heart and lungs.
- Coveralls can be hot and hard to move around in.
- Work is done mostly on your hands and knees, or while bent over.
- Goggles and safety glasses reduce visibility and field of vision.
- Care must be taken around electric wires because water is being used to keep the asbestos wet.
- The work area will be slick from wetting and become a slipping hazard.

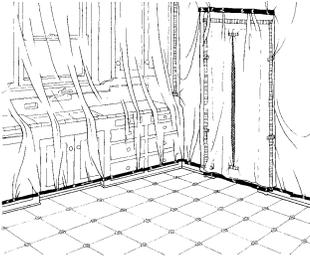
Notification

File a DEQ notification form ASN 6 for removal of nonfriable asbestos materials and pay the applicable fee. The notification must be received by the DEQ Business Office at least 5 days prior to starting the removal project. *If you are the owner occupant of a single-family dwelling doing asbestos removal on the home you live in, you do not need to file a notification.*

Procedures for removing nonfriable vinyl asbestos floor tiles

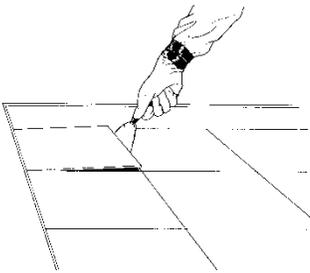
Vinyl asbestos floor tiles must be removed, handled and disposed of in a manner that keeps the material in predominantly whole pieces to be considered nonfriable.

The method of removal cannot shatter (broken into 4 or more pieces), crumble, pulverize, or reduce the material to dust. Sanding, sawing, grinding, chipping, or the use of power tools is not allowed.



Step 1 – Use the plastic sheeting to isolate doorways and cover floor registers, vents, and other surfaces to prevent contamination from asbestos fibers.

Step 2 - The tiles must be kept wet during removal. The floor area should be soaked for at least two hours before removal; this may help loosen the tiles and make them easier to remove. If there is cement under the tiles, you may want to flood the floor with water the night before you begin removal. Wetting minimizes asbestos fibers from being released. The tiles must remain wet during removal and until waste disposal occurs.



Step 3 - Use a wide putty knife or flat floor scraper and gently pry up the tiles. Keep the tiles in *whole pieces*, do not break material on purpose, do not step on material, and do not drop material. Place the material on the ground in a non-work area or in separate containers to prevent breakage. Once the material has been removed, it may not be broken further.

Note: If the material cannot be removed without shattering (broken into more than 4 pieces) it, you must follow the requirements for friable asbestos-containing materials.

Step 4 - For projects involving a very small area of 1 to 3 tiles, a heat gun (not a hair dryer), dry ice, or solvent may be used to assist in the removal of the tiles. If you use solvent, make sure the area is well ventilated.

Step 5 - Place the vinyl asbestos floor tiles in a leak-tight container and mark it with the warning statement “DANGER ASBESTOS-CONTAINING MATERIAL”. You may use burlap bags or a cardboard box as a liner inside the leak-tight container to minimize rips and tears.

Step 6 - Locate a landfill that is authorized to accept asbestos waste and be sure to inquire about hours of operation and any special packaging requirements they might have. Fill out a DEQ Waste Shipment Report ASN 4 and give it to the landfill upon arrival.

If the material becomes friable

If the vinyl asbestos floor tiles become shattered, damaged, or is badly worn, it is considered friable and may release asbestos fibers. If the tiles become friable, stop work immediately and promptly contact a DEQ licensed asbestos abatement contractor. Friable asbestos materials must be removed by a **DEQ licensed asbestos contractor using DEQ certified workers**.

All asbestos abatement rules under OAR 340-248-0005 through -0280 must be followed. A DEQ notification form ASN 1 for the removal of friable asbestos and the applicable fee must be filed. The notification must be received by the DEQ Business Office at least 10 days prior to starting the

removal project. For emergency situations a waiver of the 10-day period may be granted by the DEQ. For more information contact DEQ.

Alternative Formats

Alternative formats of this document can be made available. Contact DEQ for more information at 503-229-5696.

Asbestos Program

How to Remove Nonfriable Cement Asbestos Materials

A Guide for Meeting DEQ Rules

Purpose

The Department of Environmental Quality (DEQ) regulates the removal, handling and disposal of asbestos-containing materials during construction, remodeling, and demolition. This document provides guidance for removing nonfriable cement asbestos materials.

Before you start

Contact one of the DEQ regional offices (see contact information to the right) for information on complying with Oregon's asbestos program regulations.

If the project is taking place in a school (K-12), you must comply with the Asbestos Hazard Emergency Response Act (AHERA) rules from the U.S. Environmental Protection Agency (EPA). Contact the EPA's regional office at 800-424-4372 for current rule and policy information.

Oregon Occupational Safety and Health Administration (OR-OSHA) also has rules for working with asbestos-containing materials. Contact OR-OSHA at 503-378-3272 for current rule and policy information.

How to determine if a material contains asbestos

The only way to determine if a material contains asbestos is to take a sample and have it analyzed by an accredited laboratory.

What are cement asbestos materials?

Cement asbestos products may include shingles, siding, HVAC ducts, chimney flues, and other general construction materials. They may also go by the product name of Transite. The cement acts as a binder that holds the asbestos fibers within a solid matrix. This will prevent asbestos fibers from being released easily, unless mishandled, damaged, or in badly weathered condition. In most cases, cement asbestos materials are considered nonfriable.

Removing nonfriable asbestos-containing materials

The removal of nonfriable asbestos-containing materials in good condition is exempt from some DEQ rules. You **do not** need to be a DEQ licensed asbestos contractor or a DEQ certified asbestos worker to do nonfriable asbestos removal. If you remove cement asbestos materials following this guide, the cement materials should remain in nonfriable condition.



State of Oregon
Department of
Environmental
Quality

Asbestos Program

www.oregon.gov

Contact Information:

Clackamas, Clatsop, Columbia, Multnomah, Tillamook and Washington Counties, call the **Northwest Region – Portland Office** at 503-229-5982, 503-229-5364 or 800-452-4011.

Benton, Lincoln, Linn, Marion, Polk and Yamhill Counties, call the **Western Region – Salem Office** at 503-378-5086 or 800-349-7677.

Jackson, Josephine and Eastern Douglas Counties, call the **Western Region – Medford Office** at 541-776-6107 or 877-823-3216.

Coos, Curry and Western Douglas Counties, call the **Western Region – Coos Bay Office** at 541-269-2721, ext. 222.

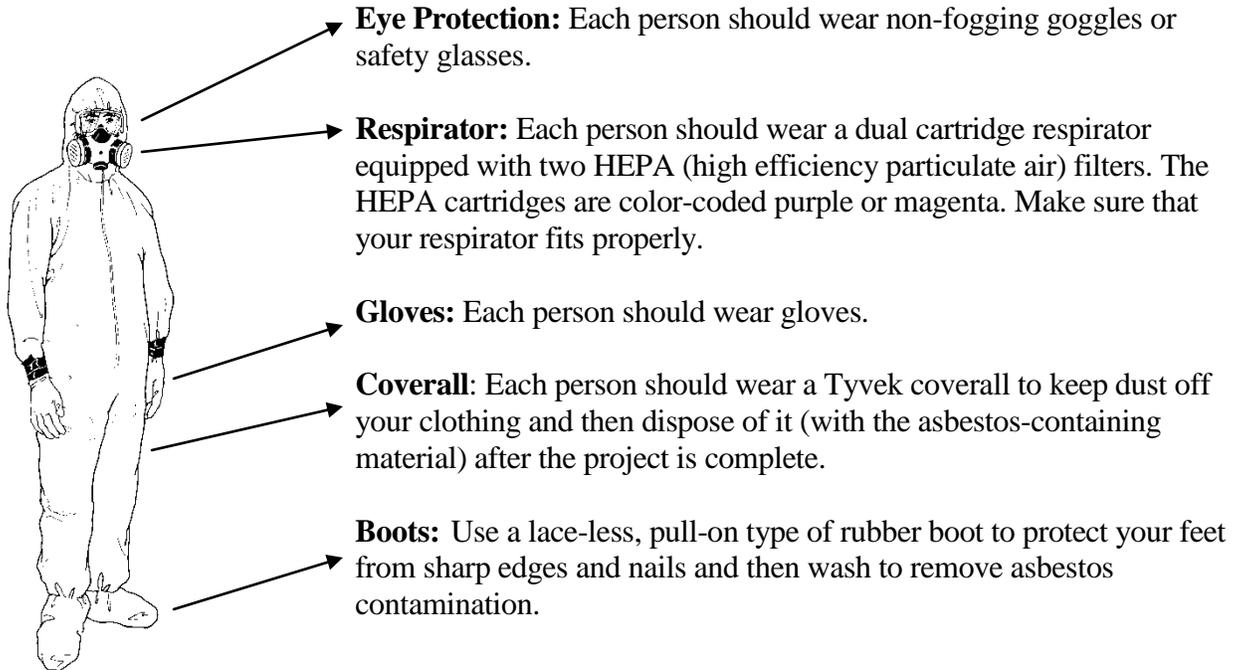
Crook, Deschutes, Harney, Hood River, Jefferson, Klamath, Lake, Sherman and Wasco Counties, call the **Eastern Region – Bend Office** at 541-633-2019 or 866-863-6668.

Baker, Gilliam, Grant, Malheur, Morrow, Umatilla, Union, Wallowa and Wheeler Counties, call the **Eastern Region – Pendleton Office** at 541-278-4626 or 800-304-3513.

Lane County, call the **Lane Regional Air Protection Agency** at 541-736-1056.

Last Updated: 3/31/14

Suggested safety equipment



Eye Protection: Each person should wear non-fogging goggles or safety glasses.

Respirator: Each person should wear a dual cartridge respirator equipped with two HEPA (high efficiency particulate air) filters. The HEPA cartridges are color-coded purple or magenta. Make sure that your respirator fits properly.

Gloves: Each person should wear gloves.

Coverall: Each person should wear a Tyvek coverall to keep dust off your clothing and then dispose of it (with the asbestos-containing material) after the project is complete.

Boots: Use a lace-less, pull-on type of rubber boot to protect your feet from sharp edges and nails and then wash to remove asbestos contamination.

Tools needed

- Water sprayer, garden type or spray bottle, or a garden hose with spray nozzle
- 3 to 6-mil thick plastic sheeting
- Razor knife
- Flat “L” shaped pry-bar (Wonder-bar)
- Tool to remove nails, such as a nail puller, vise grip or pliers
- Heavy-duty wire cutters
- Leak-tight containers, such as plastic bags, barrels or plastic wrapping

The work will be difficult

Even under the best conditions these projects are physically demanding and potentially dangerous. The following are some of the problems you will be faced with:

- Breathing through a respirator is difficult and places extra stress on the heart and lungs.
- Coveralls can be hot and hard to move around in.
- Work will involve ladders since some of the materials are located in high areas.
- Goggles and safety glasses reduce visibility and field of vision.
- Care must be taken around electric wires because water is being used to keep the asbestos wet.
- The work area will be slick from wetting and become a slipping or tripping hazard.

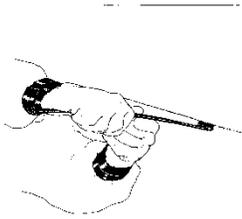
Notification

File a DEQ notification form ASN 6 for removal of nonfriable asbestos materials and pay the applicable fee. The notification must be received by the DEQ Business Office at least 5 days prior to starting the removal project. *If you are the owner occupant of a single-family dwelling doing asbestos removal on the home you live in, you do not need to file a notification.*

Procedures for removing nonfriable cement asbestos materials

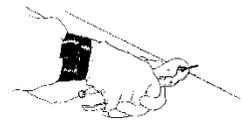
Cement asbestos materials must be removed, handled and disposed of in a manner that keeps the material in predominantly whole pieces to be considered nonfriable. The method of removal cannot shatter (broken into 4

or more pieces), crumble, pulverize, or reduce the material to dust. Sanding, sawing, grinding, chipping, or use of power tools is not allowed.



Step 1 - Keep the material wet while you remove it. Wetting minimizes asbestos fibers from being released during removal. The material must remain wet during removal and until waste disposal occurs.

Step 2 - Put plastic sheeting on the ground under the work area to contain pieces that may fall.



Step 3 - Use a razor knife and cut the paint seal around areas that were previously painted.



Step 4 - Remove screws or gently pry up material using a flat bar or similar tool so that the nail heads are exposed and can be pulled out, or clipped off with heavy-duty wire cutters.



Step 5 - Take cement materials off in *whole pieces*, do not break material on purpose, do not step on material, do not drop material, and do not throw material from ladders. Place the material on the ground in a non-work area or in separate containers to prevent breakage. Once the material has been removed, it may not be broken further.

Note: If the material cannot be removed without shattering (broken into more than 4 pieces), you must follow the requirements for friable asbestos-containing materials.

Step 6 - Place the cement asbestos materials in a leak-tight container and mark it with the warning statement "DANGER ASBESTOS-CONTAINING MATERIAL."

Step 7 - Locate a landfill that is authorized to accept asbestos waste and be sure to inquire about hours of operation and any special packaging requirements they might have. Fill out a DEQ waste shipment report ASN 4 and give it to the landfill upon arrival.

If the material becomes friable

If the cement asbestos material becomes shattered, damaged, or is badly weathered, it is considered friable and may release asbestos fibers. If the cement asbestos material becomes friable, stop work immediately and promptly contact a DEQ licensed asbestos abatement contractor. Friable asbestos materials must be removed by a **DEQ licensed asbestos contractor using DEQ certified workers.**

All asbestos abatement rules under OAR 340-248-0005 through -0280 must be followed. A DEQ notification form ASN 1 for the removal of friable asbestos and the applicable fee must be filed. The notification must be received by the DEQ Business Office at least 10 days prior to starting the removal project. For emergency situations a waiver of the 10-day period may be granted by the DEQ. For more information contact DEQ.

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