



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

DEC 3 2009

OFFICE OF  
SOLID WASTE AND EMERGENCY  
RESPONSE

**MEMORANDUM**

**SUBJECT:** Assessing Protectiveness for Asbestos Sites: Supplemental Guidance to Comprehensive Five-Year Review Guidance

**FROM:** James E. Woolford, Director  
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*for* John E. Reeder, Director  
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**TO:** Superfund National Policy Managers, Regions 1 - 10

**Purpose**

This guidance provides recommendations for evaluating protectiveness of a remedy for asbestos contamination at private and Federal Superfund sites during a five-year review. This document is supplemental to existing guidance on five-year reviews (Comprehensive Five-Year Review Guidance, EPA 2001) and provides additional information related to existing guidance for investigating asbestos-contaminated Superfund sites (see the Framework for Investigating Asbestos-Contaminated Superfund Sites, EPA 2008). This supplement discusses a recommended process for evaluating a number of unique scientific and technical issues associated with the investigation of human exposure and risk from asbestos that Regions generally should consider when making a protectiveness determination during a five-year review. As supplemental guidance, this information only applies to those sites where five-year reviews are either required or appropriate (see EPA 2001 for more information).

**Background**

Typically, asbestos has been addressed in the Superfund program by reference to the term asbestos-containing material (ACM) as it is used in the National Emission Standard for Asbestos, which is found in Subpart M of the National Emission Standards for Hazardous Air Pollutants (NESHAP), CFR 1926.1101. Under the asbestos NESHAP, Category I and Category II non-friable ACM are defined in part as certain products or materials containing >1% asbestos as analyzed by polarized light microscopy (PLM). For some asbestos sites, previous risk assessments relied on this "1%" value for asbestos when establishing a cleanup level for soil. EPA (Clarifying Cleanup Goals and Identification of New Assessment Tools for Evaluating Asbestos at Superfund Cleanups, EPA 2004) indicated that a 1% soil level may not be reliable

for assessing potential human health hazards from asbestos-contaminated soil at Superfund sites, and that instead a risk-based, site-specific action level generally may be appropriate when evaluating response actions for asbestos.

As described by EPA (2008), asbestos fibers in outdoor soil, indoor dust, or other source materials typically are not inherently hazardous unless the asbestos is released from the source material into air where it can be inhaled and cause adverse health effects. The empirical approach to site characterization recommended by EPA (2008) generally should be considered when evaluating protectiveness during a five-year review. EPA's asbestos framework (EPA 2008) provides guidance for assessing new sites or existing sites that had been addressed by the 1% value.

For asbestos sites where the remedy was based on a 1% action level for soil, Regions should consider whether the protectiveness of the remedy may be affected by the change in policy resulting from the 2004 Directive (EPA 2004); for example, the change could result in a "NO" answer to Question B of the Comprehensive Five-Year Review Guidance (EPA 2001). Protectiveness generally should be evaluated for asbestos sites in a manner that is consistent with both the EPA guidance pertaining to five-year reviews (EPA 2001) and the asbestos framework (EPA 2008); under the 2008 framework, it may be appropriate to evaluate protectiveness by comparing release of asbestos from soil to air due to soil disturbance (either current or reasonably anticipated future land use) with risk-based, site-specific action levels. This supplemental guidance provides a recommended process for evaluating protectiveness for asbestos as part of the five-year review process.

### **Implementation**

In order to assist with the protectiveness determination for five-year reviews at asbestos-contaminated sites, members of the TRW Asbestos Committee ([www.epa.gov/superfund/health/contaminants/asbestos](http://www.epa.gov/superfund/health/contaminants/asbestos)) will provide technical assistance to site teams to develop optimal strategies for site investigation.

### Attachment

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OSWER DIRECTIVE #9355.7-03B-P

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***ASSESSING PROTECTIVENESS FOR ASBESTOS SITES***  
**SUPPLEMENTAL GUIDANCE TO COMPREHENSIVE**  
**FIVE-YEAR REVIEW GUIDANCE**

**PREPARED BY THE**  
**OFFICE OF SUPERFUND REMEDIATION AND TECHNOLOGY INNOVATION**  
**OF THE OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE**  
**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

## 1.0 PURPOSE

This guidance<sup>1</sup> provides recommendations for evaluating protectiveness of a remedy for asbestos contamination at Superfund sites during a five-year review. This document is supplemental to existing guidance on five-year reviews (EPA 2001)<sup>2</sup> and provides additional information related to existing guidance for investigating asbestos-contaminated Superfund sites (see the *Framework for Investigating Asbestos-Contaminated Superfund Sites*, EPA 2008)<sup>3</sup>. This supplement discusses a recommended process for evaluating a number of unique scientific and technical issues associated with the investigation of human exposure and risk from asbestos that Regions generally should consider when making a protectiveness determination during a five-year review. As supplemental guidance, this information only applies to those sites where five-year reviews are required or appropriate (see EPA 2001 for more information).

## 2.0 OVERVIEW

Typically, asbestos has been addressed in the Superfund program by reference to the term asbestos-containing material (ACM) as it is used in the National Emission Standard for Asbestos, which is found in Subpart M of the National Emission Standards for Hazardous Air Pollutants (NESHAP), CFR 1926.1101. Under the asbestos NESHAP, Category I and Category II non-friable ACM are defined in part as certain products or materials containing >1% asbestos as analyzed by polarized light microscopy (PLM). For some asbestos sites, previous risk assessments relied on this “1%” value for asbestos when establishing a cleanup level for soil. EPA (2004)<sup>4</sup> indicated that a 1% soil level may not be reliable for assessing potential human health hazards from asbestos-contaminated soil at Superfund sites, and that instead a risk-based, site-specific action level generally may be appropriate when evaluating response actions for asbestos.

## 3.0 IMPLEMENTATION

As described by EPA (2008), asbestos fibers in outdoor soil, indoor dust, or other source materials typically are not inherently hazardous unless the asbestos is released from the source material into air where it can be inhaled and cause health effects. The empirical approach to site

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<sup>1</sup> This document provides technical and policy guidance to the EPA staff on making risk management decisions for contaminated sites. It also provides information to the public and to the regulated community on how EPA intends to exercise its discretion in implementing its regulations at contaminated sites. It is important to understand, however, that this document does not substitute for statutes that EPA administers or their implementing regulations, nor is it a regulation itself. Thus, this document does not impose legally-binding requirements on EPA, states, or the regulated community, and may not apply to a particular situation based upon the specific circumstances. Rather, the document suggests approaches that may be used at particular sites, as appropriate, given site-specific circumstances. Risk management issues should be evaluated by the site manager, with input from the site-scientific teams, stakeholders, regional management, and legal staff, as appropriate.

<sup>2</sup> EPA. 2001. Comprehensive Five-Year Review Guidance. OSWER 9355.7-03B-P. Available online at: <http://www.epa.gov/superfund/accomp/5year/index.htm>.

<sup>3</sup> EPA. 2008. Framework for Assessing Asbestos-contaminated Superfund Sites. OSWER 9200.0-68. Available online at: [http://www.epa.gov/superfund/health/contaminants/asbestos/pdfs/framework\\_asbestos\\_guidance.pdf](http://www.epa.gov/superfund/health/contaminants/asbestos/pdfs/framework_asbestos_guidance.pdf).

<sup>4</sup> EPA. 2004. Clarifying Cleanup Goals and Identification of New Assessment Tools for Evaluating Asbestos at Superfund Cleanups. OSWER 9345.4-05. Available online at: <http://www.epa.gov/region09/toxic/noa/eldorado/pdf/memo722b.pdf>.

characterization recommended by EPA (2008) generally should be considered when evaluating protectiveness during a five-year review. EPA's asbestos framework (EPA 2008) provides guidance for assessing new sites or existing sites that had been addressed by the 1% value.

For asbestos sites where the remedy was based on a 1% action level for soil, Regions should consider whether the protectiveness of the remedy may be affected by the change in policy resulting from the 2004 Directive (EPA 2004); for example, the change could result in a "NO" answer to Question B of the Comprehensive Five-Year Review Guidance (EPA 2001).<sup>5</sup> Protectiveness generally should be evaluated for asbestos sites in a manner that is consistent with both the EPA guidance pertaining to five-year reviews (EPA 2001) and the asbestos framework (EPA 2008); under the 2008 framework, it may be appropriate to evaluate protectiveness by comparing release of asbestos from soil to air due to soil disturbance (either current or reasonably anticipated future) with risk-based, site-specific action levels.

Figure 1 illustrates the recommended process for evaluating protectiveness for asbestos as part of the five-year review process.

#### **4.0 EVALUATING 1% ASBESTOS IN SOIL FOR THE FIVE-YEAR REVIEW**

The following steps illustrate a recommended process for evaluating protectiveness of the remedy for asbestos contamination in outdoor soil at Superfund sites during the five-year review. The recommended steps are shown in a flow chart (Figure 1), which assumes asbestos is present in soil. Step 1 includes the first 3 decision points on the left side of the diagram, Step 2 is the fourth decision point, and Step 3 includes the last 2 decision points. These steps are identified below.

##### **Step 1. Are all soil areas with asbestos contamination addressed?**

The first recommended step in this process is to evaluate whether the existing remedy is functioning as intended (Question A from EPA 2001). For soil areas that are contaminated with any amount of asbestos (or there is evidence suggesting asbestos contamination), protectiveness can be evaluated as follows:

- a. If additional time is needed to collect data, a protectiveness determination can be deferred until such time as the additional data are available.
- b. If all asbestos-contaminated soil areas were remediated to a risk-based level, typically, assuming assumptions used for development of the risk-based level are still valid, the remedy is considered protective.
- c. If all asbestos-contaminated soil, including soil with <1% asbestos, have been remediated or institutional controls (ICs) are in place and effective in preventing/limiting human exposure to asbestos, typically the remedy is considered protective.
- d. If asbestos-contaminated soil have been remediated using the 1% value, and soil containing <1% have been neither characterized and/or remediated, move to Step 2.
- e. If any asbestos-contaminated soil areas (i.e., any result other than non-detect) remain onsite and ICs are not in place or effective for asbestos, move to recommended Step 2.

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<sup>5</sup> Question B states: "Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy selection still valid?"

## **Step 2. Is there a potential exposure pathway?**

In this recommended step, the Region should consider whether all asbestos-contaminated soil, (including soil with less than 1% asbestos) has been remediated and, if not or if remediation does not allow unlimited use, whether ICs are in place to prevent exposure. Regions may evaluate protectiveness in part by considering the potential for exposure.

- a. If there is no potential exposure pathway, typically the remedy is considered protective.
- b. If there is a potential exposure pathway, move to recommended Step 3.
- c. If it cannot be determined whether there is a potential exposure pathway, it may be appropriate to defer the protectiveness determination or collect additional information in recommended Step 3.

## **Step 3. Is human exposure likely to be above a level of concern under current or future site conditions?**

Because sites may have been assessed/remediated using 1% asbestos in soil as an action level/cleanup level, it is possible that areas of the site where asbestos concentrations were <1% asbestos in soil may have been left un-remediated. It may be appropriate for an RPM to re-evaluate those areas of the site (non-detect and <1% data sets) to determine whether current or reasonably anticipated future activity at the site could result in human exposure to airborne asbestos above a level of concern for these areas.

This recommended step evaluates human exposure to airborne asbestos levels at the site and compares these with site-specific levels of concern considering current and future conditions. Human exposure to airborne asbestos is generally evaluated by collecting activity-based sampling (ABS) data consistent with the conceptual site model (see EPA 2008). Those exposure levels are compared to background (consistent with EPA 2002)<sup>6</sup> or site-specific risk-based levels of concern (see EPA 2008 for additional guidance).

- a. If additional time is needed to collect ABS data, it may be appropriate to defer a protectiveness determination until such time as the additional data are available.
- b. If the airborne asbestos level from site-specific, representative ABS scenarios is below the level of concern, typically the remedy is considered protective.

If the airborne asbestos level from site-specific, representative ABS scenarios is at or above the level of concern, as defined in the asbestos framework (EPA 2008), typically the remedy is not considered protective.

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<sup>6</sup> EPA. 2002. Role of Background in CERCLA Cleanup Program. OSWER 9285.6-07P. Available online at: [http://www.epa.gov/oswer/riskassessment/pdf/bkgpol\\_jan01.pdf](http://www.epa.gov/oswer/riskassessment/pdf/bkgpol_jan01.pdf).

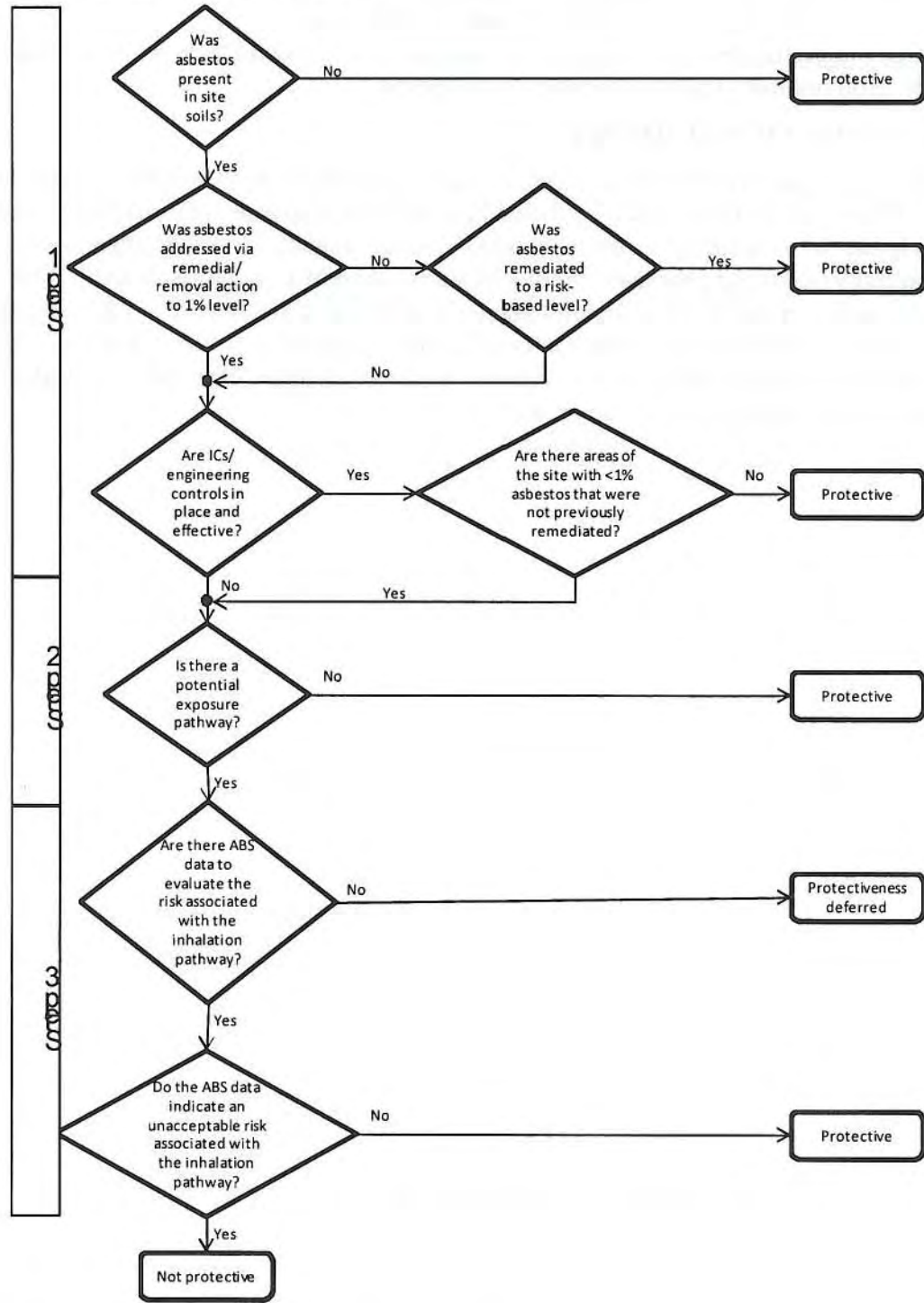
## **5.0 TECHNICAL SUPPORT**

In order to assist with the protectiveness determination for five-year reviews at asbestos-contaminated sites, members of the TRW Asbestos Committee ([www.epa.gov/superfund/health/contaminants/asbestos](http://www.epa.gov/superfund/health/contaminants/asbestos)) will provide technical assistance to site teams to develop optimal strategies for site investigation.

## **6.0 SCOPE OF THIS GUIDANCE**

This guidance does not specifically address naturally-occurring asbestos (NOA). Section 104(a)(3)(A) of CERCLA contains a qualified limitation on response authority for a release or a threat of release “of a naturally occurring substance in its unaltered form, or altered solely through naturally occurring processes, from a location where it is naturally found.” This qualified limitation in the statute generally does not affect EPA’s authority to address a release or a threat of release of NOA that has been altered by anthropogenic activities. State and local authorities may be appropriate for NOA response and management, especially in locations where NOA is found to be widespread in native soil.

**Figure 1.** The recommended process for evaluating protectiveness of a remedy for sites where asbestos contamination of soil is present.<sup>1,2,3</sup>



<sup>1</sup> Step 1. Are all soil areas with asbestos contamination addressed?

<sup>2</sup> Step 2. Is there a potential exposure pathway?

<sup>3</sup> Step 3. Is human exposure likely to be above a level of concern under current or future site conditions?