



DEPARTMENT OF THE NAVY  
NAVAL FACILITIES ENGINEERING COMMAND  
1322 PATTERSON AVENUE, SE SUITE 1000  
WASHINGTON NAVY YARD DC 20374-5065

IN REPLY REFER TO:

5090  
Ser 12008/EV3-KB  
17 May 2012

From: Commander, Naval Facilities Engineering Command

Subj: ASBESTOS GUIDANCE / FREQUENTLY ASKED QUESTIONS

Ref: (a) Department of Defense Manual (DODM). 4715.20. Defense Environmental Restoration Program (DERP) Management, March 2012

Encl: (1) Asbestos Guidance/ Frequently Asked Questions, April 12, 2012

1. In accordance with reference (a), guidance and procedures for addressing asbestos under the Environmental Restoration, Navy (ER,N) Program and Navy Base Realignment and Closure (BRAC) Program are provided in Enclosure (1). As many Navy installations have been receiving requests to evaluate asbestos at cleanup sites, this Asbestos Frequently Asked Questions (FAQ) Guidance assists with identifying issues and promoting a consistent approach for dealing with asbestos at Navy Environmental Restoration (ER) sites.

2. The main objective of the Asbestos Frequently Asked Questions (FAQ) Guidance is to assist Remedial Project Managers (RPMs) with programmatic and technical issues related to asbestos at Naval ER sites. These issues include: funding responsibilities, risk assessment methodology, and regulatory requirements.

3. The Headquarters point of contact is Ms. Kim P. Brown, who can be reached at [kim.brown@navy.mil](mailto:kim.brown@navy.mil) or (202) 685-0096. Technical questions can also be directed to Ms. Jennifer Wright at [jennifer.h.wright@navy.mil](mailto:jennifer.h.wright@navy.mil) or (757) 322-8428.

A handwritten signature in cursive script that reads "Brian P. Harrison".

BRIAN P. HARRISON, P.E.

By direction



## **Asbestos Guidance / Frequently Asked Questions**

### **Objective/Purpose**

The main objective of this document is to assist Remedial Project Managers (RPMs) with programmatic and technical issues related to asbestos at Naval Environmental Restoration (ER) sites. These issues include: funding responsibilities, risk assessment methodology, and regulatory requirements. The “Frequency Asked Questions” are presented to give general guidance. However, the RPM is encouraged to discuss site-specific conditions with their respective ER Manager to determine if circumstances allow for Environmental Restoration, Navy (ER,N) eligibility. If asbestos is driving a remedial action, activities must be coordinated with the appropriate NAVFAC Echelon 3 Command and NAVFAC Headquarters.

### **Applicability**

The guidance and procedures in this document apply to actions taken under the Environmental Restoration, Navy (ER,N) Program and Base Realignment and Closure (BRAC).

### **Background**

The United States Environmental Protection Agency (EPA) has released policy directives and a guidance document related to asbestos at CERCLA sites (EPA 2004, 2007a, 2008). These policies and guidance recommend that a risk-based approach be implemented to evaluate asbestos in soil, dust, and air versus the historical threshold of one percent (1%) that was typically used for remedial decision making. As indicated in OSWER Directive 9345.4-05 (Clarifying Cleanup Goals and Identification of New Assessment Tools for Evaluating Asbestos at Superfund Cleanups, EPA, August 2004), this 1% definition may not be reliable for assessing potential human health hazards from asbestos contaminated soils at Superfund sites, and that instead a risk-based, site-specific action level is generally appropriate when evaluating response actions for asbestos at Superfund sites. Although the OSWER Directive 9345.4-05 is designed to help steer asbestos investigations to a risk-based paradigm, it does not provide guidance for investigating and evaluating asbestos at Superfund sites. Its purpose is to provide a recommended flexible and usable framework for investigating and evaluating asbestos contamination at removal and remedial sites. Furthermore it is not intended to serve as a prescriptive guide for risk assessment or risk management activities at asbestos sites.

The Department of Defense (DOD) also recently updated the Defense Environmental Restoration Program (DERP) Manual (DOD, Mar 2012), which provides limited guidance on how to address asbestos. DERP guidance clearly states that asbestos in soil is ER, N eligible when it is not naturally occurring and not part of a building or structure. As many Navy installations have been receiving requests to evaluate asbestos at cleanup sites, this Asbestos Frequently Asked Questions (FAQ) Guidance assists with identifying issues and promoting a consistent approach for dealing with asbestos at Navy ER sites.

### **Organization of this Document**

The remainder of this document is presented as Frequently Asked Questions (FAQs), as follows.

#### **FAQ – General/Definitions**

**G1.** What is the definition of Asbestos Containing Material (ACM)?

- G2. What is the definition of friable ACM?
- G3. What is the definition of non-friable ACM?
- G4. What is the difference between “remediation” and “abatement”?
- G5. What is the difference between friable and releasable asbestos?
- G6. What is Activity Based Sampling (ABS)?

**FAQ - Eligibility and Funding: What scenarios are eligible for ER,N funding?**

- E1. When can ER,N funding be used to remediate asbestos?
- E2. When is asbestos considered a CERCLA release?
- E3. Are the rules different for BRAC funding and BRAC installations?
- E4. What happens when asbestos is discovered as part of a MILCON project at an ER site?
- E5. When asbestos is released into the environment due to poor maintenance, can ER,N funding be used for remediation? When poor maintenance leads to an ongoing release, can ER,N funding be used for abatement?
- E6. Are there other laws/regulations more appropriate than CERCLA for remediation?
- E7. Can ER,N funding be used to address abandoned utilities and structures, such as steam lines and abandoned buildings?

**FAQ - Investigation and Sampling: Is asbestos a COPC for every site?**

- S1. Should I start analyzing for asbestos as part of the “full suite”?

**FAQ - Investigation and Sampling: How and where do you sample?**

- S2. Is Activity Based Sampling (ABS) required for all asbestos sites?
- S3. Can I just perform soil sampling to determine if there would be a risk or need for remediation?
- S4. If I perform ABS at one area, can I extrapolate those results to a larger area?
- S5. Should I perform ABS for subsurface asbestos contamination?
- S6. What is considered “surface soil” when dealing with asbestos and ABS?
- S7. Can ABS be used to estimate exposure for future land use?

**FAQ - Investigation and Sampling: Analytical Considerations**

- S8. What method should be used to analyze soil samples?
- S9. What method should be used to analyze the air samples?

**FAQ - Investigation and Sampling: Sediment Sites**

- S10. Is asbestos typically a COPC for sediment sites?
- S11. Should asbestos be considered in the Watershed Contaminated Source Document (WSCD)?
- S12. Should a human health risk assessment (HHRA) be performed for asbestos in sediment?
- S13. Should sediment samples be dried and ABS be attempted?

**FAQ - Risk Assessment**

- R1. Should asbestos automatically be included in the risk assessment?
- R2. If asbestos is the only risk driver, does it drive a CERCLA response or alternatively....If asbestos is the only chemical of potential concern (COPC) at a site, should ABS be performed, risk calculated, and remediation be performed following CERCLA?
- R3. What exposure pathways should be included in a human health risk assessment?
- R4. Can the inhalation exposure pathway be evaluated for future land use?

**R5.** How can background for naturally occurring asbestos (NOA) be established?

**R6.** Does asbestos exposure need to be considered in the ecological risk assessment?

**R7.** If there is no risk at my ER site, do ARARs apply?

**FAQ – Land-Use Controls (LUC)**

**L1.** If a site obtains a No Further Action (NFA) determination because asbestos is not releasable or respirable, are LUCs required to address future degradation?

**FAQ - Five-Year Review Issues**

**F1.** Should asbestos be considered during 5-Year Reviews?

## **FAQ – General/Definitions**

### **G1.** What is the definition of Asbestos Containing Material (ACM)?

Asbestos has been historically addressed in the ER,N program by reference to the term ACM, which is found in the National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61. The NESHAP defines ACM in part as certain products or materials containing >1% asbestos as analyzed by Polarized Light Microscopy (PLM). ACM can be further divided into three major categories:

- Thermal System Insulation (TSI): ACM applied to pipes, fittings, boilers, breeching, tanks, ducts, or other interior structural components to prevent heat energy transfers or water condensation.
- Surfacing: ACM that is sprayed on, troweled on or otherwise applied to surfaces such as acoustical plaster on ceilings and fireproofing materials on structural members or other materials on surfaces for fireproofing, acoustical, or other purposes.
- Miscellaneous: ACM not included in the definition for TSI or surfacing (DON 2005).

Common ACM found at Department of the Navy (DON) sites include building material that is known to contain asbestos such as insulation, floor tile, ceiling panels, concrete, etc.

### **G2.** What is the definition of friable ACM?

Friable ACM is defined by the asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP), as any material containing more than one percent (1%) asbestos as determined using Polarized Light Microscopy (PLM), that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure (40 CFR 61.141). Examples of friable ACM found at DON sites include acoustical plaster, spray-applied insulation, duct connectors, insulation, pipe coverings, plumber's putty, and spackle or patching compounds.

### **G3.** What is the definition of non-friable ACM?

Non-friable ACM is any material containing more than one percent (1%) asbestos as determined using PLM that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure (40 CFR 61.141). EPA defines two categories of non-friable ACM, Category I and Category II. Examples of non-friable ACM found at DON sites include asphalt/cement roofing products, base flashing, asbestos cement and cement pipes, siding, vinyl asbestos floor tile, vinyl wall coverings, packing material, gaskets. Non-friable ACM can become friable due to processes such as weathering.

### **G4.** What is the difference between “remediation” and “abatement”?

For the purposes of this FAQ document, the term remediation is associated with cleanup of environmental media associated with the Navy ER program and follows the DERP process. The term abatement is not associated with the ER,N program and involves the isolation or removal of asbestos from structures and buildings. If a structure or utility is abandoned and is located on an ER,N site, such as a concrete slab or debris left over from a demolition project, remediation efforts are ER,N-eligible.

**G5.** What is the difference between friable and releasable asbestos?

For asbestos fibers to be considered releasable, the fibers must first be considered friable. The “releasability” of asbestos refers to the ability of friable asbestos particles to become airborne as respirable particles following disturbance of asbestos in the environment (EPA 2008).

**G6.** What is Activity Based Sampling (ABS)?

The EPA describes ABS as “*a standard method used by industrial hygienists to evaluate workplace exposures, [and] is a personal monitoring approach that can provide data for risk assessment ...*” (EPA 2008).

ABS is a sampling approach that simulates soil disturbance and includes personal air monitoring. When performing ABS, the individuals performing the sampling serve as surrogates for the potentially exposed receptors. Individuals performing ABS simulate the routine soil-disturbing activities that occur at the site (e.g., raking, aggressive digging, all-terrain vehicle operation, etc.) in order to mimic and predict personal exposures from disturbance of soil potentially contaminated with asbestos (EPA 2007b).

## **FAQ - Eligibility and Funding: What scenarios are eligible for ER,N funding?**

**E1.** When can ER,N funding be used to remediate asbestos?

Consistent with the draft DERP manual (Dec. 2010), ER,N funding is eligible to address asbestos that (1) is considered to be a release and (2) presents a potentially complete current or future exposure pathway to human receptors. ER,N funding cannot be used for naturally occurring asbestos or for asbestos that is part of a building or structure.

**E2.** When is asbestos considered a CERCLA release?

Asbestos is listed in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), §302.4. Since the NCP does not make distinctions about the type or form of asbestos, all forms of asbestos (e.g., friable, non-friable) are defined as hazardous substances. However, if the asbestos is intact and in normal use, the presence of asbestos does not equate to a “release” of a hazardous substance unless other conditions are met, as discussed below.

If asbestos is determined to be present, next it must be determined if the asbestos has been released to the environment. CERCLA §101(22) defines “release” as: *“any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substances or pollutant or contaminant).”*

EPA's longstanding interpretation of the term "release into the environment" is that a release that remains entirely contained within a building is not a release into the environment and therefore is not a CERCLA release (EPA 1993). A release of asbestos to the environment occurs when asbestos fibers from ACM become friable, accessible and damaged (FAD), is no longer associated with a building or structure, and is no longer functioning for the original intended use. Random ACM associated with construction debris as part of urban fill does not constitute a CERCLA release (e.g., areas where representative sampling does not indicate significant exposure to soils containing greater than 1% asbestos). ACM in concentrated areas that indicate a disposal area would constitute a CERCLA release to the environment.

**E3.** Are the rules different for BRAC funding and BRAC installations?

In addition to managing the investigation and restoration of ER Program sites, BRAC is also responsible for managing the critical mission of property transfer and disposal. In accordance with the DoD Policies on Asbestos, Lead-based Paint, and Radon (1994), ACM shall be remediated if it is of a type and condition that is not in compliance with applicable laws, regulations and standards or if it poses a threat to human health at the time of transfer of the property. This remediation can be completed by the Navy or transferee under a negotiated requirement of sale of or lease. Remediation is not required when buildings are scheduled for demolition. In this specific scenario, the transferee assumes responsibility for the management of ACM in accordance with applicable laws.

**E4.** What happens when asbestos is discovered as part of a MILCON project at an ER site?

If asbestos contamination was unforeseen, cleanup would not typically be ER,N eligible. MILCON contingency funds should pay for remediating the area that affects the MILCON project. If the MILCON project results in a partial cleanup of the ER site (e.g., demolition to a concrete slab covered with ACM tiles), ER,N funds should be used to complete the CERCLA requirements in accordance with the ER program schedule.

If asbestos on a utility or structure was known to exist prior to MILCON activities, then MILCON funding should be used to address the asbestos. MILCON funding should only be used to address the portion of site that impacts the specific construction project (e.g., limits of excavation). More information can be found in Chapter 14 of the Navy Environmental Restoration Program (NERP) manual (DON 2006).

**E5.** When asbestos is released into the environment due to poor maintenance, can ER,N funding be used for remediation? When poor maintenance leads to an ongoing release, can ER,N funding be used for abatement?

ER,N funding should not be used for remediation and/or abatement of asbestos that is released into the environment due to the deteriorating condition of an *active* structure or utility. The RPM should contact the Installation's Asbestos Program Manager (APM) and the PW Business Line to identify the parties responsible for the maintenance of the structure(s) to address the release and identify the proper response and the appropriate funding. The PW Project Manager should lead these efforts. The APM and RPM should provide support, as needed, to provide the proper Navy response to the regulatory community.

For the purposes of this document, the term remediation is associated with cleanup of environmental media associated with the Navy's Environmental Restoration Program and follows the CERCLA process. The term abatement is not associated with the ER,N Program and involves the isolation or removal of asbestos from structures and buildings. If structure or utility is abandoned and is located on an ER site, such as a concrete slab or debris left over from a demolition project, remediation efforts are ER,N-eligible.

**E6.** Are there other laws/regulations more appropriate than CERCLA for remediation?

If the asbestos is not associated with an active building or structure and is part of an ER site, then the remediation of asbestos should follow the DERP process. Other laws should be evaluated to determine if they are Applicable or Relevant and Appropriate Regulations (ARARs). For example, all friable ACM and non-friable ACM that may become friable or have been subjected to sanding, cutting or grinding are subject to the regulations of NESHAP during the removal process (40 CFR 161.141). If the asbestos is associated with buildings or structures and not DERP-eligible, then other laws and regulations would apply. An effort should be made to identify other programs or regulations that may have the authority and ability of addressing asbestos exposures and it should be routed to the proper NAVFAC component.

- E7.** Can ER,N funding be used to address abandoned utilities and structures, such as steam lines and abandoned buildings?

ER,N funding can be used to address asbestos releases at abandoned systems at ER sites, such as inactive utilities and structures left over from demolition activities. However, asbestos in the soil around an abandoned building should not be addressed until the building is demolished (e.g., the potential continuing source has been removed). For specific cases, such as where an abandoned steam line with asbestos insulation on an old pier is causing a release into the water, ER,N funding can be used to remediate the source as well as investigate the contamination.

ER,N funding cannot be used to address removal of asbestos at any active utility or structure, such as siding from old buildings that are deteriorating. ER,N funding cannot be used to demolish abandoned buildings due to maintenance neglect. Further, ER,N funding cannot be used as the primary resource for demolishing structures and utilities. This direction supplements the DERP guidance to provide clarity regarding ER,N eligibility of asbestos source removal versus remediation of a release and building demolition eligibility. See FAQ E5 for additional information on addressing asbestos at active structures and utilities.

### **FAQ - Investigation and Sampling: Is asbestos a COPC for every site?**

- S1.** Should I start analyzing for asbestos as part of the “full suite?”

No. Asbestos sampling and analysis should only be performed when historical evidence and the conceptual site model (CSM) support that there may have been a CERCLA release of asbestos at the site, consistent with the Eligibility and Funding section of this document. The CSM also must support that there are potentially complete exposure pathways to respirable asbestos fibers (e.g., bioavailable asbestos).

### **FAQ - Investigation and Sampling: How and where do you sample?**

- S2.** Is Activity Based Sampling (ABS) required for all asbestos sites?

No. It is important to consider the project quality objectives (PQOs) and how the data will be used to make decisions about the site. ABS is one option for performing asbestos sampling that relates to potential human health exposures. ABS is intended to characterize the potential for human exposure to the respirable fraction of asbestos that may be present in air following activities that could increase the airborne fraction of asbestos. As such, if there are no potentially complete exposure pathways for respirable asbestos at a CERCLA site, then ABS is not a useful or appropriate sampling method. There is uncertainty involved with the method and application of ABS results in risk assessment. Therefore, if ABS being considered, activities must be coordinated with the appropriate NAVFAC Echelon 3 Command and NAVFAC Headquarters.

**S3.** Can I just perform soil sampling to determine if there would be a risk or need for remediation?

Soil sampling is often the most effective approach when trying to determine the nature and extent of asbestos and may be the only type of sampling needed to make remedial decisions for a site. After the source of asbestos has been identified, soil sampling should typically be the first type of environmental sampling performed to determine the presence of asbestos.

If soil sampling is performed and the asbestos content is fairly high, then it may be appropriate to remediate without the need to perform ABS to more accurately estimate human exposure to respirable fraction of asbestos. However, when the asbestos content of soil is low (e.g., <1% polarized light microscopy [PLM]), the fraction of particles that are asbestos is small, and accurate quantification is generally very difficult. Thus, even EPA's 2008 "Framework" document cautions that "*the results from these methods should generally be interpreted semi-quantitatively.*" The site history and conceptual site model (CSM) should be used to determine if this site might benefit from soil sampling or if ABS may be warranted.

However, soil sampling alone will not provide results that can be used in a quantitative human health risk assessment (HHRA). ABS results are needed to perform a quantitative HHRA.

**S4.** If I perform ABS at one area can I extrapolate those results to a larger area?

It depends on the expected exposure scenarios and the project quality objectives (PQOs). As with other contaminants, the representativeness of sampling results from a smaller area to a larger area depend on several factors. The amount of asbestos that is released to the air in a respirable fraction to a person's breathing zone depends on a wide variety of factors including, but not limited to the distribution of asbestos in the environment, the size and structure of the asbestos in soil or dust, and environmental conditions such as soil type and moisture content. It also depends on the activities that are expected to occur in an area. As always, it is important to have a well-developed conceptual site model (CSM) that would support the ability to extrapolate the sampling results from one area to another.

**S5.** Should I perform ABS for subsurface asbestos contamination?

ABS should not be performed for subsurface soil unless the conceptual site model (CSM) supports that subsurface soil will be present at the surface and there are complete exposure pathways.

Although many sites may typically evaluate a construction worker exposure scenario for other chemicals of potential concern (COPC), it should not necessarily be a default scenario evaluated for sites with subsurface asbestos. Given the nature of how ABS is performed, if subsurface soil were brought to the surface and then ABS was performed, this essentially equates to the creation of a complete exposure pathway, which should always try to be avoided. Even the EPA states, *“In cases where asbestos contamination is present in subsurface media, ABS may have limited utility to predict potential future risks if that contamination is exposed”* (EPA 2008). For these reasons, it may be appropriate to discuss management actions, as discussed in FAQ L1.

**S6.** What is considered “surface soil” when dealing with asbestos and ABS?

Typically ABS involves disturbance of the top 2 to 6 inches of soil, depending on the activity being simulated. However, it is important to base the exact decision on the conceptual site model (CSM) and the types of activities that are reasonably anticipated to occur at the site. If more intrusive activities are expected at the site (e.g., soil tilling, shallow trenches, aggressive digging) then for some sites it may be appropriate to investigate a deeper horizon (e.g., up to 1 foot below ground surface).

**S7.** Can ABS be used to estimate exposure for future land use?

Yes. It is possible to perform sampling based on future land use scenarios. According to EPA’s Standard Operating Procedure (SOP) for ABS (EPA, 2007b), *“There are two types of ABS that can be employed in the field: generic ABS and site-specific ABS. Generic ABS can be used with potentially contaminated soil and utilizes a rake to disturb the top six inches of soil over an area in conjunction with the collection of air samples to characterize potential exposure. Site-specific ABS is also used with contaminated soil; however, it utilizes site-specific activities to disturb the soil, such as riding ATVs, jogging or riding bikes.”* Unless a specific future land use is known, it would probably be more appropriate to use the generic raking ABS methodology when assessing future land use.

## **FAQ - Investigation and Sampling: Analytical Considerations**

**S8.** What method should be used to analyze soil samples?

There are several available methods, such as those presented in the NESHAP (40 CFR Part 61). Choosing the one that is appropriate for your site should be based on the project quality objectives (PQOs). Most of the analytical methods rely on Polarized Light Microscopy (PLM). The two most common PLM techniques are NIOSH 9002 (NIOSH

1994) and CARB 435 (CARB 1991) and should include the appropriate quality control procedures (e.g. 10%).

If the asbestos content in soil is low, these analytical results may need to be interpreted as semi-quantitative or qualitative results. As such, before soil samples are analyzed for asbestos, it is important to document how these results will be used and interpreted in the project quality objectives (PQOs) and discussed with the partnering team.

For example, even EPA recommends that these methods may allow for comparison of asbestos content in soils from two areas, but not the exact asbestos content of the soil. According to EPA, *“When the asbestos content of soil is low (e.g., <1% PLM), the fraction of particles that are asbestos is small, and accurate quantification is generally very difficult. Thus, the results from these methods should generally be interpreted semi-quantitatively. These methods, however, do allow for a comparison among samples, and are typically sufficient to allow grouping samples into similar levels for the purpose of extrapolation of ABS results across locations.”* (EPA 2008).

**S9.** What method should be used to analyze asbestos in air samples?

There are several air methods and choosing one should be based on project quality objectives (PQOs) during the development of the sampling analysis plan. RPMs should consult with Navy chemists to identify the most appropriate and updated sampling and analysis methods. The current standard method for air sampling is an iterative approach using Phased Contrast Microscopy (PCM) Method NIOSH 7400 and Transmission Electron Microscopy (TEM) method NIOSH 7402 as a follow up method. PCM methods alone identify all fibers and are not specific to asbestos due to the magnification level.. The EPA’s 2008 “Framework” recommends TEM method ISO 10312 instead of the AHERA reference method or NIOSH 7402. However, ISO 10312 does not provide information that can be used to quantify risks, therefore its use is not warranted at this time. ISO 10312 is more complicated, time intensive per individual sample and thus more costly than other methods. As a result, costs will be higher, QA programs may not be available to verify data quality, and the additional data could increase uncertainty.

## **FAQ - Investigation and Sampling: Sediment Sites**

**S10.** Is asbestos typically a COPC for sediment sites?

No. Asbestos is not typically a COPC at sediment sites because sediment is often covered with overlying water, thereby eliminating the possibility of asbestos fibers becoming respirable. However, there can be instances of ACM being a component of insulation and other materials associated with utility lines servicing piers and other structures. Also, there can be instances of ACM (e.g., floor tiles) being associated with construction debris that has been disposed of at areas adjacent to water bodies. In these specific examples, if the CSM identifies a scenario where asbestos fibers are releasable and can become respirable, then asbestos may become a COPC for the media of sediment. For example, if an abandoned utility line is insulated with ACM, and that material falls off into the water body, then the presence/absence/nature/extent of asbestos

fibers in sediment should be characterized for consideration during remedial decision making.

**S11.** Should asbestos be considered in the Watershed Contaminated Source Document (WSCD)?

Consistent with the DON “Policy on Sediment Site Investigation and Response Action” (CNO, 2002), a WSCD should be completed if there are potentially other non-Navy sources that have contributed to the sediment contamination. If non-Navy inputs of asbestos fibers or ACM are suspected, then those other sources should be considered and evaluated in the WSCD.

**S12.** Should a human health risk assessment (HHRA) be performed for asbestos in sediment?

HHRA should not typically be performed for asbestos in sediment. Although asbestos in sediment may be considered friable<sup>1</sup>, if it is not respirable it is not appropriate to include in an HHRA. Consistent with the Navy’s HHRA Guidance (NAVFAC 2008), if the site-related constituents are not currently accessible to humans or will not be accessible based on current or future land use, then there is no possibility for human exposure and, therefore, no risk.

Currently, the only toxicity values available to quantitatively evaluate asbestos in a risk assessment are associated with the inhalation pathway. As such, in order to include an evaluation of asbestos exposure in a risk assessment, the asbestos fibers have to be respirable (that is, capable of being taken in by breathing). Due to the high moisture content of sediment, and in some cases its general “inaccessibility” since it may be covered by some amount of surface water, there are no complete exposure pathways associated with breathing in particles that are found in sediment. As such, it is not as much a matter as to whether the asbestos in the sediment is friable, but that the asbestos in the sediment is not respirable.

**S13.** Should sediment samples be dried and ABS be attempted?

No. Similar to issues related to sampling subsurface soil, sampling decisions need to be supported by the project quality objectives (PQOs) and it should be clearly understood by all team members how the data will be used. It is unlikely that there will be many situations where performing ABS on dried sediment will provide information that would be useful for making site decisions.

## **FAQ - Risk Assessment**

**R1.** Should asbestos automatically be included in the risk assessment?

---

<sup>1</sup> According to the EPA, friable asbestos-containing material (ACM) is defined by the Asbestos NESHAP (40 CFR 61.141), as any material containing more than one percent (1%) asbestos as determined using Polarized Light Microscopy (PLM), that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure.

No. The presence of asbestos at a site must be eligible as described in the DERP Manual and in the Eligibility and Funding section of this document. If it meets those requirements, then the answer may still be no. Inclusion of any constituent, including asbestos, in a risk assessment depends on the conceptual site model (CSM). There must be a potentially complete exposure scenario for current or future land use. Unlike other constituents found at ER,N and BRAC sites, the only exposure route that can currently be quantitatively assessed for asbestos is the inhalation route. As such, if there are no exposure scenarios where receptors could come into contact with and breathe in respirable, airborne asbestos fibers, then it is not appropriate to include it in a baseline risk assessment.

- R2.** If asbestos is the only risk driver, does it drive a CERCLA response or alternatively, if asbestos is the only chemical of potential concern (COPC) at a site, should ABS be performed, risk calculated, and remediation be performed following CERCLA?

Yes. If the asbestos is not associated with a building or structure, and is part of an ER site, then remediation of asbestos should follow the DERP/CERCLA process. During ER site investigations, when trying to determine the nature and extent of asbestos, soil sampling is often the most effective approach and should typically be the first type of environmental sampling performed to determine the presence of asbestos in soil.

If asbestos fibers at an ER site can become respirable (a potentially complete exposure pathway), then ABS can be used to quantitatively calculate human health risk. If soil sampling is performed and the asbestos content is fairly high, then it may be appropriate to remediate without quantitatively calculating human health risk.

At an ER site, if unacceptable risks are identified or asbestos content is fairly high, then the remediation of asbestos should follow the DERP/CERCLA process. However, other laws should be evaluated to determine if they are Applicable or Relevant and Appropriate Regulations (ARARs). For example, if a risk to human health and/or the environment is identified, the presence of asbestos may suggest that NESHAP (40 CFR 61 Subpart M) should be evaluated as an ARAR. Per the NESHAP, friable asbestos is any material containing more than 1% asbestos.

- R3.** What exposure pathways should be included in a human health risk assessment?

Currently, the only toxicity information available for use in risk assessment is an inhalation unit risk factor for cancer. Although there may be health impacts from ingestion of asbestos, the EPA has not developed any toxicity factors (i.e., reference doses or cancer slope factors) that can be used in a risk assessment. The only risk calculations that can be included in a baseline risk assessment are for prediction of excess lifetime cancer risk from inhalation of respirable particles.

- R4.** Can the inhalation exposure pathway be evaluated for future land use?

Yes. It is possible to perform sampling based on future land use scenarios. According to EPA's SOP (2007b), *"There are two types of ABS that can be employed in the field:*

*generic ABS and site-specific ABS. Generic ABS can be used with potentially contaminated soil and utilizes a rake to disturb the top six inches of soil over an area in conjunction with the collection of air samples to characterize potential exposure. Site-specific ABS is also used with contaminated soil; however, it utilizes site-specific activities to disturb the soil, such as riding ATVs, jogging or riding bikes.” Unless a specific future land use is known, it would probably be more appropriate to use the generic raking ABS methodology when assessing future land use.*

**R5.** How can background for naturally occurring asbestos (NOA) be established?

Reference samples would be more appropriate than background samples to determine where local impacts from NOA or anthropogenic sources may exist at sites. These reference samples would serve as “background levels” on a site-specific basis. Site cleanup goals must not be set below these background levels.

If it is believed that there is NOA at the site or a facility-wide anthropogenic source, consistent with the “Navy Policy on use of Background Chemical Levels” (2004), it is important to have a clear understanding of chemicals released from a site versus those that are present due to naturally occurring or anthropogenic background conditions. It is important to establish base-wide background chemical levels. Navy guidance is available to assist with the evaluation of chemical data and soil characteristics to distinguish between soils that have been impacted by a site-related chemical release and those that have not (NAVFAC 2002).

**R6.** Does asbestos exposure need to be considered in the ecological risk assessment?

No. Currently, the only toxicity information available for use in risk assessment is based on the inhalation exposure pathway for human receptors. The inhalation pathway is not typically evaluated in ecological risk assessments.

**R7.** If there is no risk at my ER site, do ARARs apply?

No. ARARs only apply if risk assessment studies indicate there is a risk to human health and the environment. According to CERCLA Section 121(d), which mandates the degree of cleanup that must be achieved on CERCLA sites, response actions conducted under Sections 104 “Response Authorities” and 106 “Reimbursement” must at least attain all applicable or relevant and appropriate requirements. ARARs are identified during the course of the Remedial Design/Remedial Action, typically following the conclusions of the Remedial Investigation. If no remedial action is necessary to reduce, control, or mitigate exposure because the site or portion of the site is already protective of human health and the environment, ARARs do not apply.

## **FAQ – Land Use Controls (LUCs)**

**L1.** If a site obtains a No Further Action (NFA) determination because asbestos is not releasable or respirable, are LUCs required to address future degradation?

No. The presence of asbestos does not trigger a LUC unless an unacceptable risk is identified through the CERCLA risk assessment process. However, it is possible that weathering or unanticipated future land use may have the potential to release asbestos in a respirable form which cannot be measured under current conditions. In these situations, the RPM should coordinate with the installation to ensure that the installation implements a management action to ensure protectiveness. The RPM shall coordinate with NAVFAC Asset Management and the installation personnel to identify property records that are accessed during planning and maintenance activities and ensure a notation is added demarking the area in which asbestos may be present at the facility. These property records often include, but are not limited to the base master plan, regional shore infrastructure plan (RSIP), global shore infrastructure plan (GSIP), Georeadiness mapping system, NIRIS, and Morale, Welfare and Recreation records. A 5-Year Review would not be required at this site.

If LUCs are being considered at your site, coordinate with the appropriate NAVFAC Echelon 3 Command and NAVFAC Headquarters.

## **FAQ - Five-Year Review Issues**

### **F1. Should asbestos be considered during 5-Year Reviews?**

Asbestos should be considered during 5-year reviews if it was a contaminant of concern in accordance with the DON 5-year Review Policy (DON 2011). Under the NCP, if a new requirement is promulgated after the ROD is signed, and the requirement is determined to be applicable or relevant and appropriate, the remedy should be examined in light of the new requirement (at the 5-year review or earlier) to ensure that the remedy is still protective. If the remedy is still protective, it would not have to be modified, even though it does not meet the new requirement. Evaluation of complete exposure pathways and current and future land use should be considered prior to performing additional sampling, analysis or risk calculation. For example, if asbestos or ACM was associated with an ER site and the final remedy for the site was a soil cap with appropriate land use controls; no additional sampling, analysis or risk calculation would be necessary because there is not a complete exposure pathway and the remedy is still protective.

## References

- 40 Code of Federal Regulations (CFR) Part 61, National Emission Standards For Hazardous Air Pollutants, Subpart M- National Emission Standard for Asbestos. Section 141, Definitions.
- CARB. 1991. California Environmental Protection Agency Air Resources Board (CARB). 1991. Method 435: Determination of Asbestos Content of Serpentine Aggregate. Adopted: June 6, 1991. [www.capcoa.org/noa/%5B21%5D%20CARB%20Method%20435.pdf](http://www.capcoa.org/noa/%5B21%5D%20CARB%20Method%20435.pdf).
- CNIC Instruction 5100.1, ASBESTOS MANAGEMENT PROGRAM, 7 December 2006.
- Department of Defense (DoD). 1994. Policies on Asbestos, Lead-Based Paint, and Radon at Base Realignment and Closure Properties. October 31, 1994.
- Department of Defense (DoD). 2012. Defense Environmental Restoration Program (DERP) Manual 4715.20 DODM. March 2012.
- Department of the Navy (DON). 2002. Navy/Marine Corps Installation Restoration Policy on Sediment Investigations and Response Actions. 8 Feb 2002.
- Department of the Navy (DON). 2004. Navy Policy on Use of Background Chemical Levels. 30 Jan 2004.
- Department of the Navy (DON). 2005. OPNAV Instruction 5100.23G. Navy Safety and Occupational Health Program Manual. December 30, 2005.
- Department of the Navy (DON). 2006. Department of the Navy Environmental Restoration Program (NERP) Manual. August 2006.
- Department of the Navy (DON). 2011. Policy for Conducting Five-Year Reviews. 7 June 2011.
- Naval Facilities Engineering Command (NAVFAC). 2002. Guidance for Environmental Background Analysis. Volume I: Soil. April 2002.
- Naval Facilities Engineering Command (NAVFAC). 2008. U.S. Navy Human Health Risk Assessment Guidance. December 2008.
- NIOSH. 1994. Method 9002, Issue 2: Asbestos (bulk) by PLM. National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods (NMAM), Fourth Edition, August 15, 1994.
- United States Environmental Protection Agency (EPA). 1993. Response Actions at Sites with Contamination Inside Buildings. OSWER Directive 9360-3-12. August 12, 1993.

United States Environmental Protection Agency (EPA). 2004. Clarifying Cleanup Goals and Identification of New Assessment Tools for Evaluating Asbestos at Superfund Cleanups. OSWER Directive 9345.4-05. August 10, 2004.

United States Environmental Protection Agency (EPA). 2007a. EPA Region 9 Memorandum Re: Asbestos and 120(h) Transfers. March 23, 2007.

United States Environmental Protection Agency (EPA). 2007b. Standard Operating Procedures. Activity-Based Air Sampling for Asbestos. SOP: 2084. May 10, 2007.

United States Environmental Protection Agency (EPA). 2008. Framework for Investigating Asbestos-Contaminated Superfund Sites. OSWER Directive #9200.0-68. Prepared by the Asbestos Committee of the Technical Review Workgroup of the Office of Solid Waste and Emergency Response. September.