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RCRA, Superfund & EPCRA Hotline Training Module

Introduction to:

**Applicable or Relevant and
Appropriate Requirements**

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APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

CONTENTS

1. Introduction.....	1
2. Regulatory Summary	3
2.1 Role and Definition of Applicable or Relevant and Appropriate Requirements.....	4
2.2 Types of ARARs.....	5
2.3 Extent of ARARs: On-Site vs. Off-Site Management.....	6
2.4 Remedial vs. Removal Actions	8
2.5 To-Be-Considered Guidelines and Other Controls.....	8
3. ARAR Identification.....	9
3.1 ARAR Identification Process	9
3.2 Federal ARARs: RCRA, CAA, CWA, SDWA, TSCA.....	10
3.3 State and Local ARARs	19
3.4 ARAR Waivers.....	19
4. Module Summary	23

1. INTRODUCTION

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, also known as Superfund, directed EPA to identify abandoned or uncontrolled hazardous waste sites and to clean up the worst of these sites. The Agency carries out these responsibilities through the Superfund response process, according to procedures outlined in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). EPA's authority to initiate a Superfund response is triggered by the release or threatened release of a hazardous substance into the environment. To create the list of regulated hazardous substances, Congress incorporated many substances regulated under other federal environmental laws, such as the Clean Air Act (CAA), the Clean Water Act (CWA), and the Resource Conservation and Recovery Act (RCRA). In 1980, Congress did not, however, identify, or direct EPA to develop, uniform cleanup levels or management standards for these hazardous substances. Congress established a risk-based threshold for Superfund cleanups which allowed the Agency to achieve protective results, while affording significant flexibility with respect to the selection of remedial alternatives and the implementation of response activities. This approach allowed EPA to tailor responses to account for the various types of substances (solvents, radionuclides, PCBs, etc.) and types of contaminated media (soil, groundwater, structures, etc.) found at Superfund sites, but left some doubt as to the means to ensure safe hazardous substance management practices or to select appropriate cleanup, emissions, and discharge levels. In the absence of management and cleanup standards specific to the Superfund program, EPA's policy to ensure protectiveness was to attain or exceed pertinent standards (unless waivers were invoked) from existing federal environmental laws, including those laws Congress had borrowed from to generate the list of hazardous substances.

Within the Superfund Amendments and Reauthorization Act (SARA) of 1986, Congress essentially translated into law EPA's policy to use other environmental laws to guide response actions. SARA added CERCLA §121(d), which stipulates that the remedial standard or level of control for each hazardous substance, pollutant, or contaminant be at least that of any applicable or relevant and appropriate requirement (ARAR) under federal or state environmental law. For example, CWA restrictions can be applicable to hazardous substances discharged into surface water from a Superfund site. Regulations codified in the NCP govern the identification of ARARs and require compliance with ARARs throughout the Superfund response process, including during certain removal actions.

When you have completed this module, you should be able to:

- Describe the overall role played by ARARs in the Superfund response process
- Explain the difference between applicable and relevant and appropriate requirements

- Explain how ARARs apply to on- and off-site response actions
- Describe how and at what stages of the response process ARARs are identified
- Discuss the type and extent of ARARs that may apply to a given response action
- Discuss specific laws and requirements that may come into play at a Superfund site.

Use this list of objectives to check your knowledge of ARARs after you attend the training session.

2. REGULATORY SUMMARY

At the core of the Superfund program is a multi-phase response process used to clean up the most dangerous hazardous substance releases in the nation. EPA initiates the Superfund response process by identifying abandoned or uncontrolled hazardous waste sites and hazardous substance releases, and then determining which warrant attention. In emergency situations, the respondent (EPA, another federal, state, or local agency, or a potentially responsible party (PRP)) will conduct a removal action to eliminate the threat, whereas at sites where the threat is less immediate, the respondent will perform more extensive investigations to determine the appropriate remedial alternatives. In either case, the chosen management standards and cleanup levels must be protective, based on a site-specific risk assessment, and, for on-site response actions, consistent with state and federal ARARs identified for the site.

CERCLA §121(d) specifies that on-site Superfund remedial actions must attain federal standards, requirements, criteria, limitations, or more stringent state standards determined to be legally applicable or relevant and appropriate to the circumstances at a given site. Such ARARs are identified during the remedial investigation/feasibility study (RI/FS) and at other stages in the remedy selection process. For removal actions, ARARs are identified whenever practicable depending upon site circumstances. To be applicable, a state or federal requirement must directly and fully address the hazardous substance, the action being taken, or other circumstance at a site. A requirement which is not applicable may be relevant and appropriate if it addresses problems or pertains to circumstances similar to those encountered at a Superfund site. While legally applicable requirements must be attained, compliance with relevant and appropriate requirements is based on the discretion of the Remedial Project Manager (RPM), On-Scene Coordinator (OSC), or state official responsible for planning the response action.

The scope and extent of ARARs that may apply to a Superfund response action will vary depending on where remedial activities take place. For on-site response activities, CERCLA does not require compliance with administrative requirements of other laws. CERCLA requires compliance with only the substantive elements of other laws, such as chemical concentration limits, monitoring requirements, or design and operating standards for waste management units for on-site activities. Administrative requirements, such as permits, reports, and records, along with substantive requirements, apply only to hazardous substances sent off site for further management. The extent to which any type of ARAR will apply also depends upon where response activities take place. Applicable requirements are universally applicable, while relevant and appropriate requirements only affect on-site response activities.

Many federal statutes and their accompanying regulations contain standards that may be applicable or relevant and appropriate at various stages of a Superfund

response. For instance, regulations promulgated under RCRA, CAA, CWA, and the Safe Drinking Water Act (SDWA) frequently affect removal and remedial actions. Laws and requirements enforced by agencies other than EPA may also be applicable or relevant and appropriate at a Superfund site.

During on-site response actions, ARARs may be waived under certain circumstances. In other cases, the response may incorporate environmental policies or proposals that are not applicable or relevant and appropriate, but do address site-specific concerns. Such to-be-considered (TBC) standards may be used in determining the cleanup levels necessary for protection of human health and the environment.

ARARs must be identified on a site-by-site basis. Features such as the chemicals present, the location, the physical features, and the actions being considered as remedies at a given site will determine which standards must be heeded. The lead and support agencies (typically EPA and the state) are responsible for the identification of ARARs, and will work closely with other federal and/or state agencies to obtain information or technical assistance. This module describes the procedures used to identify and implement ARARs at Superfund sites, and highlights elements of certain federal environmental laws that frequently function as ARARs.

2.1 ROLE AND DEFINITION OF APPLICABLE AND RELEVANT AND APPROPRIATE REQUIREMENTS

ARARs are used in conjunction with risk-based goals to govern Superfund response activities and to establish cleanup goals. EPA uses ARARs as the starting point for determining protectiveness. When ARARs are absent or are not sufficiently protective, EPA uses data collected from the baseline risk assessment to determine cleanup levels. ARARs thus lend structure to the Superfund response process, but do not supplant EPA's responsibility to reduce the risk posed by a Superfund site to an acceptable level.

Determining exactly which laws and regulations will affect a Superfund response is somewhat different than determining the impact of laws and regulations on activities that take place outside the boundaries of a Superfund site. For instance, for on-site activities, CERCLA requires compliance with both directly applicable requirements (i.e., those that would apply to a given circumstance at any site or facility) and those that EPA deems to be relevant and appropriate (even though they do not apply directly), based on the unique conditions at a Superfund site.

APPLICABLE REQUIREMENTS

Applicable requirements are those cleanup standards, controls, and other substantive environmental protection requirements, criteria, or limitations

promulgated under federal or state law that specifically address a hazardous substance, pollutant, or contaminant, remedial action, location, or other circumstance at a Superfund site (§300.400(g)). Basically, to be applicable, a requirement must directly and fully address a CERCLA activity. For example, the RCRA regulations governing the operation and design of hazardous waste incinerators (40 CFR Part 264, Subpart O) apply to hazardous waste incinerators used at Superfund sites.

Determining which standards will be applicable to a Superfund response is similar to determining the applicability of any law or regulation to any chemical, action, or location. The lead or support agency must examine federal and state statutes and regulations to identify those which directly govern response activities.

RELEVANT AND APPROPRIATE REQUIREMENTS

CERCLA, in addition to incorporating applicable environmental laws and regulations into the response process, requires compliance with other relevant and appropriate standards which serve to further reduce the risk posed by a Superfund site. Relevant requirements are those cleanup standards, standards of control, or other substantive environmental provisions that do not directly and fully address site conditions, but address similar situations or problems to those encountered at a Superfund site. RCRA landfill design standards could, for example, be relevant to a landfill used at a Superfund site, if the wastes being disposed of were similar to RCRA hazardous wastes. Whether or not a requirement is appropriate (in addition to being relevant) will vary depending on factors such as the duration of the response action, the form or concentration of the chemicals present, the nature of the release, the availability of other standards that more directly match the circumstances at the site, and other factors (§300.400(g)(2)). In some cases only a portion of the requirement may be relevant and appropriate.

The identification of relevant and appropriate requirements is a two step process; only those requirements that are considered both relevant and appropriate must be addressed at CERCLA sites. The RPM or OSC, based on their best professional judgment, is ultimately responsible for deciding which requirements are both relevant and appropriate.

2.2 TYPES OF ARARs

Environmental laws and regulations fit (more or less) into three categories: 1) those that pertain to the management of certain chemicals; 2) those that restrict activities at a given location; and 3) those that control specific actions. There are therefore three primary types of ARARs. Chemical-specific ARARs are usually health- or risk-based restrictions on the amount or concentration of a chemical that may be found in or discharged to the environment. Examples include RCRA land disposal restrictions (LDR) treatment standards and SDWA maximum contaminant levels

(MCLs). Location-specific ARARs prevent damage to unique or sensitive areas, such as floodplains, historic places, wetlands, and fragile ecosystems, and restrict other activities that are potentially harmful because of where they take place. RCRA, for example, prohibits the placement of hazardous waste in geologically unstable areas. Action-specific ARARs are activity or technology based. These ARARs control remedial activities involving the design or use of certain equipment, or regulate discrete actions. The decision to dispose of a waste contaminated with polychlorinated biphenyls (PCBs) could, for example, trigger requirements under the Toxic Substances Control Act (TSCA) to burn the waste in an incinerator that meets TSCA design and operating standards.

2.3 EXTENT OF ARARs: ON-SITE VS. OFF-SITE MANAGEMENT

The types of legal requirements applying to Superfund responses will differ to some extent depending upon whether the activity in question takes place on site or off site (the term "on site" includes not only the contaminated area at the site, but also all areas in very close proximity to the contamination necessary for implementation of the response action). Superfund responses must comply with all substantive requirements that are "applicable" or "relevant and appropriate." Off site, compliance is required only with applicable requirements, but both substantive and administrative compliance are necessary. Thus, compliance on site is broader in some respects, and narrower in others, than would be required where similar actions were conducted outside the CERCLA context (e.g., if a private party were doing an entirely voluntary cleanup on its own property).

On-site compliance is broadened by the need to comply with "relevant and appropriate" as well as "applicable" requirements. For example, it could be relevant and appropriate (and therefore mandatory) to achieve RCRA design standards for a landfill accepting nonhazardous wastes with properties similar to hazardous wastes. If the same wastes were sent off site, they would not necessarily have to go to a RCRA-permitted facility, since RCRA standards are only directly applicable to material defined as hazardous waste. (EPA could decide, as a matter of "protectiveness," to require disposal at a RCRA landfill for such waste, but this would not be a matter of "compliance" with RCRA.)

In some cases, hazardous substances may be managed on site during the course of a response action, and then sent off site for treatment, storage or disposal. In such cases, the requirements that must be complied with will depend on what activity takes place on site and what is conducted off site. Activities conducted on site would have to comply with all ARARs; those conducted off site would have to comply only with applicable requirements. For example, wastes produced from sampling activities during the site inspection (SI) or the RI/FS (known as investigation-derived wastes) must be managed in accordance with federal or state ARARs so long as they are on site, even if they may eventually be sent off site for disposal. This might mean, for example, storing them in containers that meet RCRA standards

where the wastes are not strictly subject to RCRA, but present hazards that make RCRA relevant and appropriate. When shipped off site, however, compliance with RCRA manifesting and disposal rules would not be necessary.

On the other hand, compliance on site is narrower with regard to administrative requirements. Congress limited the scope of EPA's obligation to attain administrative ARARs through CERCLA §121(e), which states that no federal, state, or local permits are required for on-site Superfund response actions. This permit exemption allows the response action to proceed in an expeditious manner, free from potentially lengthy delays associated with the permit process (it usually takes several years to issue a RCRA permit, for example). The lack of permitting authority does not impede implementation of an environmentally protective remedy, since CERCLA and the NCP already provide a procedural blueprint for responding to the release or threatened release of a hazardous substance into the environment.

EPA interprets CERCLA §121(e) broadly to cover all administrative provisions from other laws, such as recordkeeping, consultation, and reporting requirements. In other words, administrative requirements do not apply to on-site response actions (see Table 1). Only the substantive elements of other laws affect on-site responses. Examples of substantive requirements include concentration limits for chemical emissions or discharges and specifications for the design and operation of remediation equipment. A liner system for a hazardous waste landfill is a substantive standard that would, for example, be an ARAR for a landfill at a Superfund site, while the RCRA requirement to obtain a permit or submit a waste analysis plan for the landfill would not be an ARAR. Furthermore, where RCRA hazardous waste is stored on site for more than 90 days, and then transported and disposed of off site, EPA would not have to obtain a storage permit, but would have to adhere to all federal and state administrative standards pertaining to the off-site transportation and disposal.

Table 1
SCOPE AND EXTENT OF ARARs

	Scope of Requirements	Extent to Which Other Laws Apply
On-Site Compliance	Substantive	Applicable and Relevant and Appropriate
Off-Site Compliance	Substantive and Administrative	Applicable Requirements

2.4 REMEDIAL VS. REMOVAL ACTIONS

The implementation of ARARs is an integral part of the Superfund response process. ARARs may come into play throughout the course of a Superfund response, including both remedial and removal actions. For remedial actions, CERCLA requires compliance with ARARs for all hazardous substances remaining on site at the end of the response. Removal actions must attain ARARs to the extent practicable, considering site-specific circumstances, including the urgency of the situation, the scope of the removal action, and the impact of ARARs on the cost and duration of the removal action (§300.415(j)). The OSC would not, for example, have to stop to identify ARARs prior to removing potentially explosive munitions discovered in a residential area, or comply with an ARAR that would cause the removal action to exceed the statutory 12 month, \$2 million limits. OSCs must document why certain ARARs are not practicable for emergency removal actions, but should strive to implement those ARARs that are most crucial to the protection of human health and the environment (for further information, see Superfund Removal Procedures: Guidance on the Consideration of ARARs During Removal Actions, EPA540-P-91-011).

2.5 TO-BE-CONSIDERED GUIDELINES AND OTHER CONTROLS

Since conditions vary widely from Superfund site to Superfund site, ARARs alone may not adequately protect human health and the environment. When ARARs are not fully protective, EPA may implement other federal or state policies, guidelines, or proposed rules capable of reducing the risks posed by a site. Such TBC standards, while not legally binding (since they have not been promulgated), may be used in conjunction with ARARs to achieve an acceptable level of risk. TBCs are evaluated along with ARARs as part of the risk assessment conducted for each CERCLA site to set protective cleanup levels and goals. Proposed concentration-based action levels under RCRA could, for instance, be used as TBC guidelines to trigger treatment of soils contaminated with hazardous wastes. Because TBCs are not potential ARARs, their identification is not mandatory.

When ARARs and TBCs do not specify a particular remedy, EPA has the discretion to choose the best remedial alternatives. EPA prefers to use active control measures, such as treatment, to eliminate the principal threats posed by a Superfund site. If active measures are not practicable or cost-effective, institutional controls, such as restrictions on site use or access, or engineering controls, such as waste containment, may be used to prevent exposure to hazardous substances (§300.430(a)(iii)). A fence restricting access to a contaminated area could, for example, be a satisfactory means of reducing the risk posed by a Superfund site in the absence of ARARs, TBCs, or a more permanent remedy.

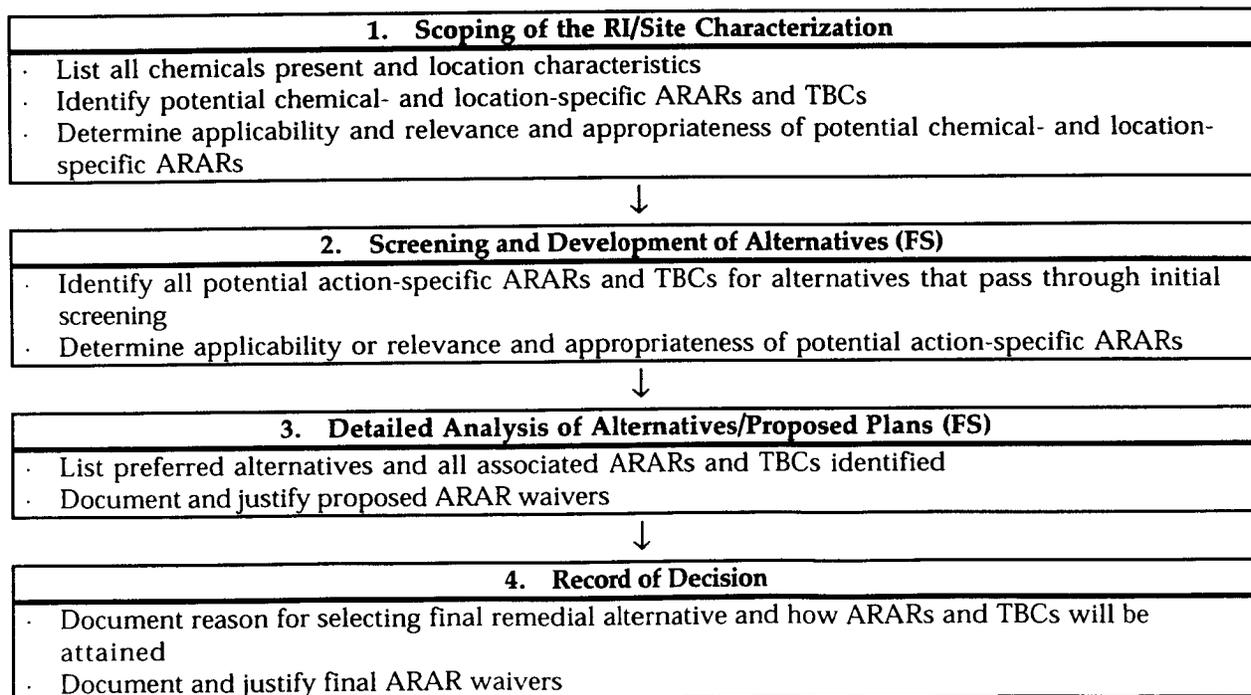
3. ARAR IDENTIFICATION

CERCLA §121(d) requires compliance with state and federal ARARs for wastes left on site at the conclusion of a remedial response. The NCP requires attainment of ARARs during removal actions where practicable, considering the urgency of the situation (§300.415(j)). In addition, EPA policy is to comply with ARARs throughout the response action at all potential points of exposure, and to meet any TBC standards necessary for protection of human health and the environment. ARARs and TBCs must be identified on a site-specific basis, considering the hazardous substances present, the site's physical features, the actions being considered as remedies, and other factors. The lead and support agencies are responsible for the identification of ARARs and TBC guidelines, and will work closely with other EPA and state offices to determine which other laws should be considered and which specific requirements must be implemented.

3.1 ARAR IDENTIFICATION PROCESS

ARAR identification is a critical element of the Superfund response process that depends upon cooperation and communication among the lead and support agencies and the appropriate EPA and state program offices. The ARAR identification process begins during the scoping phase of the remedial investigation (RI), and continues through the creation of the ROD, as illustrated by the following flow chart:

ARAR IDENTIFICATION PROCESS



3.2 FEDERAL ARARs: RCRA, CAA, CWA, SDWA, TSCA

Many federal statutes and regulations contain requirements that may function as ARARs. Since no two Superfund sites are alike, it is impossible to state generically which laws will come into play during a Superfund response. Certain federal laws and the accompanying regulations do, however, address circumstances often encountered at CERCLA sites. Among the laws with requirements that are frequently applicable or relevant and appropriate to response actions are RCRA, CWA, CAA, SDWA, and TSCA. The CERCLA Compliance with Other Laws manuals (OSWER Directives 9234.1-01 and 9234.1-02) and accompanying fact sheets contained in the Compendium of CERCLA ARARs Fact Sheets and Directives (OSWER Directive 9347.3-15), provide detailed descriptions of how each of these laws may impact the Superfund response process. The following subsections summarize information found in the CERCLA Compliance with Other Laws manuals and address those aspects of RCRA, CAA, CWA, SDWA, and TSCA that often affect Superfund responses.

RESOURCE CONSERVATION AND RECOVERY ACT

RCRA regulates various waste management activities in order to encourage resource conservation and protect human health and the environment. RCRA Subtitle C and the Subtitle C regulations (appearing in 40 CFR Parts 260-299), which govern hazardous wastes from the point of generation through the point of disposal, have the greatest likelihood of being applicable or relevant and appropriate to CERCLA response actions. The term "hazardous waste" encompasses discarded materials which are listed in the RCRA Subtitle C regulations (hereafter referred to as RCRA regulations) or which exhibit hazardous characteristics, including ignitability, corrosivity, reactivity, and toxicity. RCRA ARARs come into play when materials meeting the regulatory definition of a hazardous waste, either because they are listed or exhibit a characteristic, or materials that are similar to hazardous wastes, are encountered at Superfund sites.

RCRA and CERCLA are closely linked, both in terms of purpose and the types of substances covered by each program. In fact, the list of CERCLA hazardous substances includes all RCRA hazardous wastes (CERCLA §101(14)). EPA therefore has the authority to respond to releases of hazardous wastes and to clean up hazardous wastes present at Superfund sites. EPA also has the obligation to meet all substantive ARARs pertaining to the management of hazardous wastes.

Applicable RCRA Requirements

In order for a RCRA requirement to be applicable to a Superfund response activity, the materials being managed during a Superfund response activity must either be listed in the RCRA regulations (§§261.31-261.33) or exhibit a hazardous waste characteristic (§§261.20-261.24). RCRA requirements are only applicable to wastes

defined as hazardous. It is not always readily apparent whether a waste is hazardous, since it is often necessary to know the origin of a waste to determine if it is listed, and detailed information about a waste's origin is not always available at CERCLA sites. Under such circumstances, the lead agency will use available site information, storage records, and other records to make a hazardous waste determination.

For wastes that are hazardous, a variety of substantive requirements may be applicable, if CERCLA site-specific activities coincide with the treatment, storage, and disposal activities regulated under Subtitle C. Potentially applicable RCRA standards include design and operating standards for units that treat, store, or dispose of hazardous wastes; treatment standards for wastes that will be placed on the land; groundwater monitoring requirements; and closure standards for treatment, storage, and disposal units.

Design and Operating Standards (Part 264): Among the potentially applicable substantive RCRA standards are design and operating specifications for hazardous waste treatment, storage, and disposal units used at Superfund sites. For example, RCRA hazardous waste incinerator performance standards (Part 264, Subpart O), such as destruction and removal efficiency and limits on hydrogen chloride and particulate matter emissions, are applicable to hazardous waste incinerators used during remedial actions. RCRA design and operating standards are also applicable to containers and tanks used to store hazardous wastes at CERCLA sites (Part 264, Subparts I and J). RCRA land disposal unit design and operating standards, known collectively as minimum technological requirements, apply when permanent on-site disposal of hazardous wastes in landfills, waste piles, surface impoundments, or land treatment units is part of the remedy (Part 264, Subpart N).

Groundwater Monitoring (Part 264, Subpart F): Additional RCRA standards may be applicable to hazardous waste land disposal units at CERCLA sites. RCRA groundwater monitoring standards, which involve the use of monitoring wells to detect the presence of contaminants in underlying aquifers, are applicable when a Superfund response involves the creation of a new land disposal unit or the remediation of an existing land disposal unit.

Land Disposal Restrictions (Part 268): The temporary or permanent placement of restricted hazardous wastes on the land at a CERCLA site may trigger RCRA land disposal restrictions (LDR) treatment standards as applicable requirements. LDR treatment standards, which vary depending on the type of hazardous waste being treated, are concentration- and technology-based standards designed to reduce the mobility and toxicity of hazardous constituents present in hazardous wastes. In order for LDR treatment standards to apply, placement of restricted hazardous wastes must occur (not all hazardous wastes are necessarily subject to LDR treatment standards).

Placement does not occur when restricted hazardous wastes are moved or treated within an area of contamination (AOC), which is essentially a discrete zone of continuous contamination at a Superfund site, but may occur in other cases when hazardous wastes come into contact with the land at a Superfund site. For further guidance on this issue, see Determining When Land Disposal Restrictions (LDRs) Are Applicable to Response Actions (OSWER Directive 9347.3-05FS).

Closure and Post Closure (Part 264, Subpart G): RCRA closure and post-closure requirements may also be applicable to on-site hazardous waste management units, such as tanks, waste piles, and surface impoundments, that are taken out of service at Superfund sites. There are two types of potentially applicable RCRA closure schemes: clean closure and landfill closure. Clean closure involves removing or decontaminating all waste residues, contaminated equipment, and contaminated soils so that no additional care or monitoring is required, either at RCRA or CERCLA sites. Landfill closure involves leaving hazardous wastes and contaminated equipment in place, and may trigger applicable requirements such as the use of a final cap or cover for the unit and continued groundwater monitoring in the post-closure period.

RCRA administrative standards apply when hazardous wastes are sent off site for further management. Administrative RCRA standards include the obligation to obtain permits and keep various records at all hazardous waste treatment, storage, and disposal facilities (TSDFs); and the requirement to include a hazardous waste manifest (which is simply a special shipping paper) when sending hazardous wastes off site.

Relevant and Appropriate RCRA Requirements

Management of wastes that do not meet the definition of RCRA hazardous wastes may trigger relevant and appropriate RCRA requirements, if the wastes are sufficiently similar to hazardous wastes to warrant such standards. For example, it could be relevant and appropriate, prior to land placement, to subject wastes containing significant concentrations of RCRA hazardous constituents (i.e., chemical constituents found in listed or characteristic hazardous waste) to LDR treatment standards. The mere presence of RCRA hazardous constituents in a CERCLA waste does not, however, necessarily mean that the waste is sufficiently similar to a hazardous waste to trigger relevant and appropriate RCRA standards. As always, the OSC or RPM must make the final decision regarding the implementation of relevant and appropriate requirements.

CLEAN AIR ACT

The Clean Air Act is designed to protect and enhance the quality of air resources so as to promote the public health and welfare and the productive capacity of its

population. The Act is divided into seven different titles, or sections, which regulate various types of air emissions, including obvious air emission sources, such as incinerators, as well as less obvious sources, such as air stripping, solidification/stabilization, and other waste treatment technologies.

Only Titles I and III of CAA are likely to directly affect a Superfund remedial action. Since on-site CERCLA actions are not subject to administrative procedures and permit requirements (found within Title V of the CAA), CAA can therefore only affect CERCLA actions substantively. The following paragraphs address regulations promulgated under Titles I and III of CAA that may function as ARARs at a Superfund site. For further information on CAA as an ARAR, see ARARs Fact Sheet: Compliance with the Clean Air Act and Associated Air Quality Requirements, OSWER Directive 9234.2-22FS.

National Ambient Air Quality Standards (NAAQSs)

Title I of CAA requires EPA to publish NAAQSs, or acceptable environmental levels, for "criteria pollutants." To carry out this mandate, EPA requires each state to identify areas that have attained NAAQSs for criteria pollutants (classified as "attainment areas") and those that have not (classified as "non-attainment areas"). An area may be in attainment for one pollutant but in non-attainment for another. EPA also requires each state to submit a State Implementation Plan (SIP) showing how NAAQSs will eventually be achieved in non-attainment areas or will be maintained in attainment areas. In establishing area-specific SIPs, states must regulate certain point sources. These SIP point-source standards must be consistent with New Source Performance Standard (NSPS), which are nationwide, EPA-enforced point-source emission requirements (see below).

NAAQSs are not enforceable in and of themselves. Any substantive standards contained within the SIP are, however, federally enforceable, and are potential ARARs. Although NAAQSs themselves are never ARARs, they may be used as other criteria or guidelines to be considered (TBCs) on an appropriate basis.

To determine whether elements of NAAQSs (as embodied in a SIP) will be applicable, the RPM must consider whether the area is a non-attainment or attainment area. In general, states promulgate "reasonably available control technology" for existing sources within a non-attainment area in order to achieve NAAQSs. Since new sources, such as incinerators or waste treatment operations at CERCLA sites, can raise emissions in an area above NAAQSs for particular pollutants, they may be affected by SIPs. CAA does, however, allow for existing sources to reduce their collective emissions to "make room" for the new source. New sources must also comply with other requirements, such as setting a state-approved lowest achievable emission rate.

In attainment areas, CAA requires a Prevention of Significant Deterioration Program (PSD), designed essentially to make sure the area does not recede into non-

attainment. The program (called the primary control strategy) regulates the construction of new sources and major modifications to existing sources. PSD requirements will be potential ARARs for response actions when major new sources or modifications occur in an attainment area (e.g., incineration, air stripping, or soil vapor extraction equipment at a CERCLA site).

New Source Performance Standards (NSPS)

NSPSs, promulgated pursuant to Title I of CAA, only apply to certain major new sources and major modifications of existing sources that emit "designated pollutants" (which are different than criteria pollutants). The purpose of the NSPS emission standards is to ensure that certain sources identified by EPA are designed, built, and operated in a manner that reflects the best demonstrated technology and retains economic feasibility in a uniform manner across the country. The particular source categories governed by NSPS are generally not found at CERCLA sites, and are therefore not applicable requirements. They may, however, be relevant and appropriate if the pollutants emitted or technologies employed during a response action are sufficiently similar to an NSPS designated pollutant or source category.

National Emission Standards for Hazardous Air Pollutants (NESHAPs)

NESHAPS are point-source standards promulgated under Title III of CAA for substances identified by EPA as hazardous air pollutants (HAPs) (which are designated as hazardous substances under CERCLA §101(14)). Before 1990, CAA directed EPA to establish hazardous air pollutants (HAPs) and to regulate the particular sources that emitted HAPs (e.g., inorganic arsenic emissions from glass manufacturing plants). By 1990, EPA had promulgated eight HAPs. These eight HAPs are still in effect, and thus will be potential ARARs until they are suspended. The NESHAP for asbestos may, for example, be applicable to asbestos emitted from CERCLA sites.

The CAA amendments of 1990 greatly expanded the role of NESHAPs. The new law added a list of 189 new HAPs, and promulgated a schedule for EPA to designate 174 HAP source categories by the year 2000. For all source categories that emit HAPs, EPA must develop Maximum Achievable Control Technology standards. These control technology standards may be applicable or relevant and appropriate to CERCLA sites emitting HAPs from designated sources. NESHAPs for remediation are due in the year 2000.

CLEAN WATER ACT

The primary purpose of the Clean Water Act, also known as the Federal Water Pollution Control Act, is to restore and maintain the quality of surface waters by restricting discharges of all designated pollutants, which include 126 "priority toxic pollutants," various "conventional pollutants," and certain "nonconventional pollutants." CWA, like RCRA and CAA, is intimately connected to CERCLA; all 126

CWA priority toxic pollutants are CERCLA hazardous substances (CERCLA §101(14)). EPA thus has the authority under Superfund to respond to releases of priority toxic pollutants. EPA also must adhere to applicable or relevant and appropriate CWA standards during response actions. CWA regulations that are most likely to be ARARs at Superfund sites are standards governing direct discharges to surface waters, indirect discharges to publicly owned treatment works (POTWs), and discharges of dredge-and-fill materials into U.S. waters.

Direct Discharges

CWA controls the direct discharge of pollutants to surface waters through the National Pollutant Discharge Elimination System (NPDES) program (CWA §402), which contains both substantive and administrative standards that may be ARARs. Potentially applicable substantive NPDES standards include technology-based pollutant controls, or effluent standards, governing surface water discharges. A NPDES effluent control technology, could, for example, be applicable to the discharge of a treated CERCLA wastewater to any surface water. Administrative NPDES standards, such as permit and certification requirements, are applicable to CERCLA discharges to off-site surface water. CERCLA response actions frequently trigger administrative NPDES standards, because only surface water that is within or in very close proximity to an AOC is considered on site.

The NPDES program also includes ambient water quality standards that could be relevant and appropriate to CERCLA discharges, depending on the designated and potential uses of affected surface waters, and other factors (§300.430(e)(2)(i)(B)). Ambient water quality standards include federal water quality criteria (FWQC) and state water quality standards (WQS), which set concentrations of pollutants considered adequate to protect surface waters for various uses, and state antidegradation standards, designed to protect existing uses of waters and maintain water quality.

Indirect Discharges

CWA controls indirect discharges of wastewater to POTWs through performance- and technology-based pretreatment standards (CWA §307(b)). Any discharge from a CERCLA site to a POTW is considered an off-site activity, subject to substantive and administrative requirements of federal, state, and local pretreatment programs, including pollutant concentration limits and monitoring and reporting requirements. Not all POTWs have an EPA-approved pretreatment program. Remedial project managers must evaluate any POTW without an EPA-approved program to determine if the facility is capable of accepting CERCLA wastewaters.

Dredge-and-Fill Requirements

Section 404 of CWA regulates the discharge of dredged or filled material into United States' waters, including wetlands. Substantive and administrative CWA dredge-

and-fill requirements may be applicable or relevant and appropriate to many CERCLA actions, such as dredging and disposal of contaminated soils or sediments, construction of berms and levees to contain wastes, and stream channelization. ARARs from other laws, including standards under the Rivers and Harbors Act and the Marine Protection Research and Sanctuaries Act (MPRSA), may also affect CERCLA dredge-and-fill activities.

SAFE DRINKING WATER ACT

The Safe Drinking Water Act and the SDWA regulations (40 CFR Parts 141-149) are designed to protect human health from contaminants in drinking water. To achieve these ends, EPA has developed concentration-based limits for certain contaminants and management techniques that ensure the quality of public drinking water supplies. Substantive SDWA requirements that may be applicable or relevant and appropriate at CERCLA sites include: drinking water standards, restrictions on the underground injection of wastes, and groundwater protection programs.

Drinking Water Standards

There are two types of SDWA drinking water standards that serve to protect public water systems: primary and secondary drinking water standards. Primary drinking water standards consist of federally enforceable maximum contaminant level goals (MCLGs) and maximum contaminant levels (MCLs). For CERCLA actions, MCLGs or MCLs are applicable when response actions impact public water systems that have at least 15 service connections or serve at least 25 year-round residents. The MCLG for a particular contaminant will be the applicable level to meet unless it is zero, in which case the MCL for the contaminant becomes the applicable level to attain. MCLs or MCLGs may also be relevant and appropriate as cleanup standards for on-site ground or surface waters that are current or potential sources of drinking water (§§300.430(e)(2)(i)(B) and (C)).

Secondary drinking water standards are state guidelines, consisting of secondary maximum contaminant levels (SMCLs), pertaining to the aesthetic qualities of drinking water (i.e., color, odor, and taste). In states that have adopted secondary drinking water standards, SMCLs are potential ARARs.

Underground Injection Control Program

Underground injection through bored wells is a common disposal option for liquids. SDWA regulates the subsurface emplacement of liquids through the Underground Injection Control (UIC) program (40 CFR Parts 144-148), which governs the design and operation of five classes of injection wells in order to prevent contamination of underground sources of drinking water.

For any class of injection well used at a CERCLA site, the substantive provisions of the UIC program may be applicable. The UIC program regulates well construction, including the design of the well casing; well operation, including maintenance of injection pressure; and monitoring, including analysis of injected fluids and periodic demonstrations of well integrity. Substantive standards under both RCRA Subtitle C and the UIC program may be applicable to wells used to inject liquid RCRA hazardous wastes (Class I or Class IV wells). Wells that inject hazardous waste into or above an underground source of drinking water (Class IV wells) are banned except when used to treat reinjected wastes as part of a RCRA or CERCLA cleanup action (§144.13).

UIC administrative requirements, such as permits, inventory records, and reporting requirements, are not applicable to on-site CERCLA injection wells.

Sole Source Aquifer and Wellhead Protection Programs

SDWA prevents federal funding from being committed to any project that may contaminate a "sole source aquifer," meaning any EPA-designated aquifer that is the only principal drinking water supply for a given area which, if contaminated, would present a significant human health hazard. Generally, CERCLA activities do not in and of themselves increase pre-existing contamination of sole source aquifers. Although it is unlikely that CERCLA activities would be subject to funding restrictions, a review of potential problems associated with sole source aquifers should be part of the RI/FS process.

The SDWA wellhead protection program is a state-implemented initiative intended to protect wells and groundwater recharge areas that supply public drinking water systems. Elements of state wellhead protection programs may be ARARs at CERCLA sites.

TOXIC SUBSTANCES CONTROL ACT

TSCA creates a broad range of chemical control measures including information gathering, chemical testing, labeling, inspection, storage, and disposal requirements. For example, under TSCA authority, EPA requires chemical manufacturers to notify the Agency prior to producing a new chemical (known as premanufacture notification), and can require manufacturers to test selected chemicals for toxic effects. TSCA §6 allows EPA to strictly regulate any chemical that poses an "unreasonable risk," based on its likelihood to cause adverse effects to human health or the environment.

Regulations under TSCA §6, which range from product labeling requirements to the outright ban on the manufacture or use of certain chemicals, are potential ARARs at Superfund sites. Chemicals regulated under TSCA §6 include asbestos, CFCs used as

aerosol propellants, hexavalent chromium, and polychlorinated biphenyls (PCBs). Of these toxic substances, PCBs are most often encountered at Superfund sites.

PCB Requirements

Various TSCA §6 regulations pertaining to PCBs may be ARARs at Superfund sites. TSCA governs many aspects of PCB management, including the cleanup of spills, storage, and disposal. EPA has published a spill response policy (52 FR 10688; April 2, 1987), that may be a TBC guideline for CERCLA response actions. EPA has also proposed PCB spill response regulations (59 FR 62788; December 6, 1994) which utilize self-implementing, performance-based, and risk-based cleanup standards to address various types of PCB releases.

TSCA's PCB disposal regulations vary according to the physical form of the contaminated material (i.e., liquid vs. non-liquid) and whether the material is defined as "PCB-contaminated equipment," for concentrations between 50 and 500 ppm (parts per million), or simply PCBs, for concentrations above 500 ppm. PCB contamination below 50 ppm is not regulated by TSCA, except under special circumstances. To ensure safe disposal practices for regulated PCBs and PCB-contaminated equipment, TSCA may require treatment by incineration or another equivalent method, or placement in a TSCA-approved chemical waste landfill. One or more of these substantive PCB disposal standards could be an ARAR at a Superfund site, depending on the type of contaminated material present. For further information on TSCA regulations that may be ARARs or TBCs, see A Guide on Remedial Actions at Superfund Sites with PCB Contamination, OSWER Directive 9355.4-01FS.

Liquid RCRA hazardous wastes contaminated with PCBs at concentrations greater than 50 ppm are also subject to RCRA land disposal restrictions standards, which call for treatment in either high-efficiency TSCA-approved boilers (for PCB concentrations greater than or equal to 50 ppm but less than 500 ppm) or treatment in a TSCA incinerator (for PCB concentrations of 500 ppm or greater).

OTHER FEDERAL ARARs

ARARs may stem from various other federal laws and regulations. Among the federal laws which may come into play are the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the Endangered Species Act, and the National Historic Preservation Act. Certain primarily administrative federal laws, such as the National Environmental Policy Act (NEPA), do not, however, normally serve as ARARs.

3.3 STATE AND LOCAL ARARs

Many states implement environmental regulations that differ from federal standards. CERCLA §121(d)(2) requires compliance with applicable or relevant and appropriate state requirements when they are more stringent than federal rules and have been “promulgated” at the state level. To be viewed as promulgated and serve as an ARAR at a Superfund site, a state requirement must be legally enforceable, based on specific enforcement provisions or the state’s general legal authority, and must be generally applicable, meaning that it applies to a broader universe than Superfund sites. State rules must also be identified by the state in a timely manner (i.e., soon enough to be considered at the appropriate stage of the Superfund response process) in order to function as ARARs. A Superfund Memorandum of Agreement (SMOA) which includes a schedule for identifying state ARARs is one means of ensuring timely communication between EPA and a state.

Generally, laws and regulations adopted at the state level, as opposed to the regional, county, or local level, are potential state ARARs. Requirements that are developed by a local or regional body and are both promulgated and legally enforceable by the state may, however, also serve as ARARs. Environmental standards that are often more stringent at the state level and that commonly function as state ARARs include: hazardous waste facility siting restrictions under RCRA, CWA toxic pollutant discharge limits, and CWA antidegradation requirements for surface water and ground water.

State ARARs may be waived under certain circumstances. Of the six waivers set forth in CERCLA §121(d)(4), one applies exclusively to state ARARs: the inconsistent application of a state standard waiver (see Section 2.8 above). In addition, many state regulations have their own waivers or exceptions that may be invoked at a Superfund site (for further information about state ARARs and waivers, see CERCLA Compliance with State Requirements, OSWER Directive 9234.2-05/FS).

3.4 ARAR WAIVERS

As mentioned previously, Congress strengthened CERCLA by adding SARA §121(d), which requires compliance with federal and state ARARs for on-site response actions. Congress also identified certain circumstances under which a law or regulation that would normally be an ARAR may be waived in favor of another protective remedy (CERCLA §121(d)(4) and 40 CFR §300.430(f)(1)(ii)(B)). The following six types of “ARAR waivers” may be invoked during a remedial action (for further discussion, see Overview of ARARs: Focus on ARAR Waivers, OSWER Directive 9234.2-03/FS).

INTERIM MEASURES

An ARAR may be temporarily waived to implement a short-term alternative, or interim measure, provided that the final remedy will, within a reasonable time, attain all ARARs without causing additional releases, complicating the response process, presenting an immediate threat to public health or the environment, or interfering with the final remedy. For example, the lead agency (EPA or the state) could, while awaiting test results, choose to temporarily cap a RCRA waste pile to minimize migration of contaminants into the groundwater, provided that RCRA waste pile closure standards will ultimately be achieved.

GREATER RISK TO HUMAN HEALTH AND THE ENVIRONMENT

An ARAR may be waived if compliance with the requirement will result in greater risk to human health and the environment than non-compliance. It might, for example, be riskier to meet an ARAR calling for dredging of a riverbed to remove PCB-contaminated sediments, and in so doing release PCBs into the river, than to leave the contaminated sediments in place.

TECHNICAL IMPRACTICABILITY

An ARAR may be waived if it is technically impracticable from an engineering standpoint, based on the feasibility, reliability, and cost of the engineering methods required. It is, for example, often technically impracticable to remove from a drinking water aquifer dense, nonaqueous phase liquids (DNAPLs) trapped in deep bedrock fractures. The lead Agency may, in such cases, waive the requirement to meet SDWA or other standards (Guidance for Evaluating the Technical Impracticability of Groundwater Restoration: Interim Final, OSWER Directive 9234.2-25).

EQUIVALENT STANDARD OF PERFORMANCE

An ARAR may be waived if an alternative design or method of operation can produce equivalent or superior results, in terms of the degree of protection afforded, the level of performance achieved, long-term protectiveness, and the time required to achieve beneficial results. Although RCRA may call for the use of a specific technology to treat a hazardous waste prior to land disposal, the equivalent standard of performance waiver could, for example, be invoked if a different treatment method could reduce the mobility or toxicity of the waste to a comparable degree.

INCONSISTENT APPLICATION OF STATE STANDARD

A state ARAR may be waived if evidence exists that the requirement has not been applied to other sites (NPL or non-NPL) or has been applied variably or inconsistently. This waiver is intended to prevent unjustified or unreasonable state restrictions from being imposed at CERCLA sites.

FUND-BALANCING

An ARAR may be waived if compliance would be costly relative to the degree of protection or risk reduction likely to be attained and the expenditure would jeopardize remedial actions at other sites. The lead Agency should consider the fund-balancing waiver when the cost of attaining an ARAR is 20 percent or more of the annual remedial action budget or \$100 million, whichever is greater (for further information, see ARARs Q's and A's: The Fund-Balancing Waiver, OSWER Directive 9234.2-13/FS).

DOCUMENTATION OF ARAR WAIVERS

When an alternative that does not attain an ARAR is chosen, the basis for waiving the requirement must be fully documented and explained in the ROD, in accordance with the criteria described above (§300.430(f)(5)(ii)(C)). In some cases, the RI/FS may not provide sufficient information to determine if an ARAR waiver is necessary. The presence of DNAPLs may not, for example, come to light until the remedial action stage when a groundwater pump and treat system is up and running. The lead agency may therefore include a contingent ARAR waiver(s) in the ROD, by specifying specific contaminant levels or circumstances that will trigger the waiver. For further guidance, see ARARs Q's & A's: General Policy, RCRA, CWA, SDWA, Post-ROD Information, and Contingent Waivers (OSWER Directive 9234.2-01/FS-A).

4. MODULE SUMMARY

CERCLA and the NCP establish a standardized process through which EPA must respond to spills and clean up the nation's most dangerous hazardous waste sites. The Superfund response process, while it does set acceptable risk-based goals for Superfund cleanups, does not impose specific restrictions on the various activities (such as treatment, storage, and disposal of wastes, construction and use of remediation equipment, and release of contaminants into air, soil, and water) which may occur during a response. EPA instead relies on other federal and state environmental laws and regulations to govern response activities.

A site-specific risk assessment is the foundation upon which the selection of a Superfund remedy is based. When developing preliminary remediation goals, the lead and support agencies must, however, also consider readily available, generically applicable information, such as chemical-specific ARARs (§300.430(e)(2)(i)). In addition, when carrying out the chosen remedy the lead and support agencies must implement other substantive and administrative requirements that are applicable or relevant and appropriate to the conditions or actions at each Superfund site. These ARARs may affect a remedial or a removal response by limiting concentrations of hazardous substances present in wastes or discharges, restricting activities at sensitive locations, or regulating certain actions, such as the design and operation of cleanup equipment. The laws which most often contribute ARARs to the Superfund response process are federal environmental laws, but other federal, state, and local standards may also be applicable or relevant and appropriate to CERCLA activities. ARARs fill in the substantive gaps in Superfund's risk-based response framework, ensuring protection of human health and the environment.