Technical Aspects of Phase I/II Environmental Site Assessments: 2nd Edition

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Foreword

The ASTM Manual on *Technical Aspects of Phase I/II Environmental Site Assessments: 2nd Edition (MNL43–2nd)* is sponsored by ASTM Committee E 50 on Environmental Assessment, Risk Management and Corrective Action.

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PART TWO
Phase II Environmental Site Assessment Process

Acknowledgments

This manual changed from a dream to a reality because of ASTM and the many wonderful professionals associated with this technical organization.

It all began in 1993, when at the invitation of ASTM's Scott Murphy, I and my colleagues on ASTM's Technical and Professional Training team developed the first Phase I Environmental Site Assessment Training Course. Since then, by teaching the class throughout the United States and throughout the world, we all enjoyed and continue to enjoy the opportunity to share a wealth of environmental knowledge, practical experiences, and helpful business information with each other and our students.

The experience was broadened further when we developed the Phase II Environmental Site Assessment Course, which was completed in February of 1999 and has been offered by ASTM since then on a monthly basis. Because of the natural progression and close relationship of the two Standards, several of the instructors now teach both courses. It was during the development of the Phase II Course that I first conceived the idea of a manual based on the principles of the two Standards, but which would also address many of the issues brought up during the classroom sessions. With the encouragement and support of my colleagues, I set out to fulfill that dream.

The first edition of this manual was published in 1999. In 2002 I completed the work with Mr. Shunichi Kamewada on a translation of the manual into Japanese, and I subsequently visited Japan on several occasions to train Japanese instructors in a number of ASTM Standards.

In recent years with the advent of EPA Brownfields Programs and related legislative developments a number of changes evolved in the industry that drove the need to revise the ASTM Standards and the necessity to edit and update this manual. Mr. John Worlund, a seasoned professional and trainer in the Standards and active participant in the ASTM standardization process graciously agreed to co-author this edition.

Many of the examples in the book are based on actual experiences of the instructors and students. Because of client confidentiality issues, many of the examples and case studies have been purged of names and references. In this second edition, a number of the examples and photographs have been updated and revised. Sincere

thanks go to the instructors who provided the materials, encouragement, and expertise during the writing and technical review. Without their help this manual would not have been possible.

Special thanks also go to Jay VanHouten for drafting the chapter on *Safety and Health* and to David Vieau for providing materials presented in the chapter on *Work Plans*.

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Introduction

This is an introductory chapter to both Part I and Part II of the manual. In it, we will discuss the content of the book, people who may benefit from reading it, and we will review the regulatory background that formed the foundation of the ASTM Phase I and II Standards.

Combining environment business & standards

What *is* the Manual About?

This book is about environment, business and standards. More specifically it is about applying ASTM Environmental Assessment Standards to environmental issues so that the various participants involved in commercial real estate transactions can make sound business decisions. This is a second edition of the manual. Much of the updated information in this edition was driven by the EPA development of new rules for All Appropriate Inquiry. This required a substantive revision of the existing ASTM Phase I Standard to comply with the new EPA rules.

In the early seventies, few commercial real estate transactions ever considered business and environmental issues as being even remotely related. The concept of environmentally related Standards as a tool for applying business judgments did not appear compatible. In the nineties, very few commercial real estate transactions transpired without due consideration of environmental issues and their impact on business decisions. Current legislative developments, especially in Brownfields projects, have driven the changes in the Standards, and the industry is paying close attention to the way the changes are likely to impact commercial real estate transactions.

This manual examines related topics of business, legislation, standards, and the environment in the context of commercial real estate transactions. It looks at how the environmental professionals apply and use ASTM Standards to generate sufficient environmental information for the parties involved in the transaction to reach sound business decisions.

What this Manual *is not* About

This book will not teach anyone how to be an engineer, geologist or a scientist. It cannot cover or replace the body of knowledge taught to these professionals during their years in college and the subsequent expertise they gained through the practice of their respective professions. It will also not teach anyone where to sink a monitoring well or which regulation applies to a specific project. That knowledge must be gained by practical experience. Lastly, this book will not teach anyone about the best instrumentation or

the latest remediation methods used in the field. New methods and instrumentation are being introduced on a daily basis, and anyone serious about the environmental business must develop a suitable approach to staying informed.

Who Would Benefit from Reading It?

Environmental professionals & Users involved in real estate transactions

Because this book is a manual on the technical aspects of the Phase I and Phase II Environmental Site Assessments (Phase I/II ESAs) and is organized around ASTM Standards, it is written primarily for those who either use the Standards to perform the assessments or those who use the information generated from the assessment activities.

Historically, environmental professionals and businessmen hold different views of the world. Today's real estate transactions require all groups to develop a better understanding of each other's function. ASTM Standards are a tool to promote that understanding. There is information in this book that will help all the other participants (users) in the real estate industry. This includes, in addition to the ones mentioned above, buyers, regulators, property owners, attorneys, lenders, and grantees. Others who may find information of value include commercial real estate brokers and appraisers, local and state economic development agencies, and those involved with environmental insurance.

Conflicting interests of players in environmental transactions

By nature, commercial transactions consist of numerous, varied and often competing interests. Even in a simple scenario involving only a seller, buyer, banker, and an environmental professional, numerous conflicting interests abound. The seller and the buyer want a fair price. A fair price is not necessarily the same figure to both parties. All parties perceive any additional cost associated with the transaction as detrimental unless the other party has to pay for it. If some contamination is discovered on the property, the buyer may want to use it as a bargaining chip. On the other hand, he may think that environmental professionals make their living by cleaning up properties, using this as an opportunity to generate more business. The banker wants to make the loan, but wants to minimize the risk of the loan going bad. One way to minimize risk is to hire a reputable environmental professional to thoroughly check the property. This will cost money, and if the cost is too high, the buyer will obtain the loan from a competitor who has more risk tolerance or uses a cheaper environmental professional. Lastly, everyone except the environmental professional wants everything done yesterday!

The ASTM Environmental Assessment Standards were created to help with the resolution of some of these competing interests. This book examines how the Standards can be used as a tool to resolve some of these issues. The Standards are a tool for both the environmental professionals and the users. To best utilize the tool, both must learn how to use it. This manual will help the environmental professional to structure and perform environmental site assess-

ments in a manner conforming to the Standards and at the same time meet the needs of other users. The users reading this manual will gain an appreciation of the purpose and scope of the assessments, their responsibilities, and how to help the environmental professional identify items of importance in the business decision process. The book was designed to foster a better understanding between environmental professionals and users with respect to environmental site assessments.

To the average player in a real estate transaction, reading an environmental standard or regulation can be a frustrating experience. The seemingly unending sentences intertwined with impressive yet unfamiliar terms can leave the reader gasping for air halfway through the first paragraph. In contrast, this manual is written in an easy to read and understandable format. It uses simple terms and general examples to enable the readers to grasp the intended meaning rather than trying to impress them with fancy terminology.

How Is the Manual Organized?

Regulatory Review Phase I Phase II Appendices

This book is designed to help the environmental professionals and the users to apply the ASTM Phase I ESA (E 1527) [1] and Phase II ESA (E 1903) [2] Standards. The regulatory background for both parts of the manual is provided in the rest of this introductory chapter. Part One of the book is dedicated to the understanding and appreciation of the E 1527 Standard, including the changes incorporated into the 2005 version. A new chapter has been added to explain the relationship between EPA's All Appropriate Investigation Rule and ASTM E 1527. Part Two builds on the experience and knowledge gained in Part One and covers E 1903, elaborating on the technical business application of the Phase II Standard. The reader should be familiar with the ASTM E 1527 and E 1903 Standards. The latest version of the Standards can be obtained from ASTM.

Regulatory Background

Environmental regulation, as we know it today, is a relatively recent event as most of the environmental laws affecting the market place today were developed in the past 30 years. Broadly speaking, environmental regulation consists of all laws that affect property and natural resources.

Congress and judge-made laws

In the United States of America, two entities create law the on federal level. The first is the United States Congress. It passes the environmental laws that we will be talking about next. An agency, typically EPA, will then write a set of regulations that explain in detail how the law will be applied. The second entity consists of the judges who create what is known as Case Law. Judge-made law or case law is created when the judge interprets the meaning and intent of the Congress-created law and rules on a particular issue of the case. Most of these disputes are related to disagreements about the regulatory language the agency adopted. Congres-

sional laws can be looked at as general laws, while case laws are case specific. Case law is important in the environmental area because it can change rapidly (from one case or judge to the next), and it can affect the interpretation of the congressional law as reflected in the regulations. In the next few paragraphs, we will talk about the laws passed by Congress, and throughout the book we will present several examples of case law outcomes. The federal environmental laws discussed here are depicted in a conceptual timeline in Fig. 1, demonstrating the relatively brief history of environmental regulation in the United States.

Environmental Protection Agency

Perhaps one of the oldest federal regulations with respect to the environment is the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). When it was first enacted in 1947, its intent was to protect consumers against fraudulent claims made by pesticide makers. The environmental and health impacts of pesticides were not known at the time. In 1970, the U.S. Environmental Protection Agency (EPA) was created to help protect the environment and to control and abate environmental pollution under the laws enacted by Congress. FIFRA came under EPA's responsibility in 1970 and was amended in 1972 to shift FIFRA's emphasis to public health and environmental protection. Through a registration process EPA attempts to ensure that if used properly the pesticide does not present unreasonable health or environmental risks that outweigh its benefits to society.

Clean Air Act

The Clean Air Act (CAA) was passed in 1970 and gave EPA the power to establish clean air standards. Amendments followed in 1974, 1977, and 1990. Besides establishing ambient air pollution standards such as those emitted by vehicles, EPA also establishes standards for point sources such as factories and power plants.

Clean Water Act

In 1972, Congress passed the Federal Water Pollution Act (FWPCA). This was the predecessor to the Clean Water Act (CWA) of 1977, under which the EPA controls pollutants entering all surface waters, including lakes, rivers, estuaries, oceans, and wetlands.

In 1976, Congress passed the Resource Conservation and Recovery Act (RCRA) and the Toxic Substance Control Act (TSCA).

Resource Conservation and Recovery Act

RCRA is designed to manage industrial wastes from the point of generation to their final disposal location. It is often referred to as the "cradle to grave" management process for hazardous wastes. The Act requires the generators and transporters to identify, quantify, and characterize their hazardous wastes. It also specifies performance standards and permit systems for Treatment Storage and Disposal (TSD) facilities. Most important for the Phase I industry is the fact that all petroleum products are regulated under RCRA.

RCRA was amended in 1984 by the Hazardous Solid Waste Amendments (HSWA). The amendments were aimed at the protection of ground water by new requirements for managing and treating small quantities of hazardous wastes such as those generated by auto repair shops. It created new regulations for dry cleaners

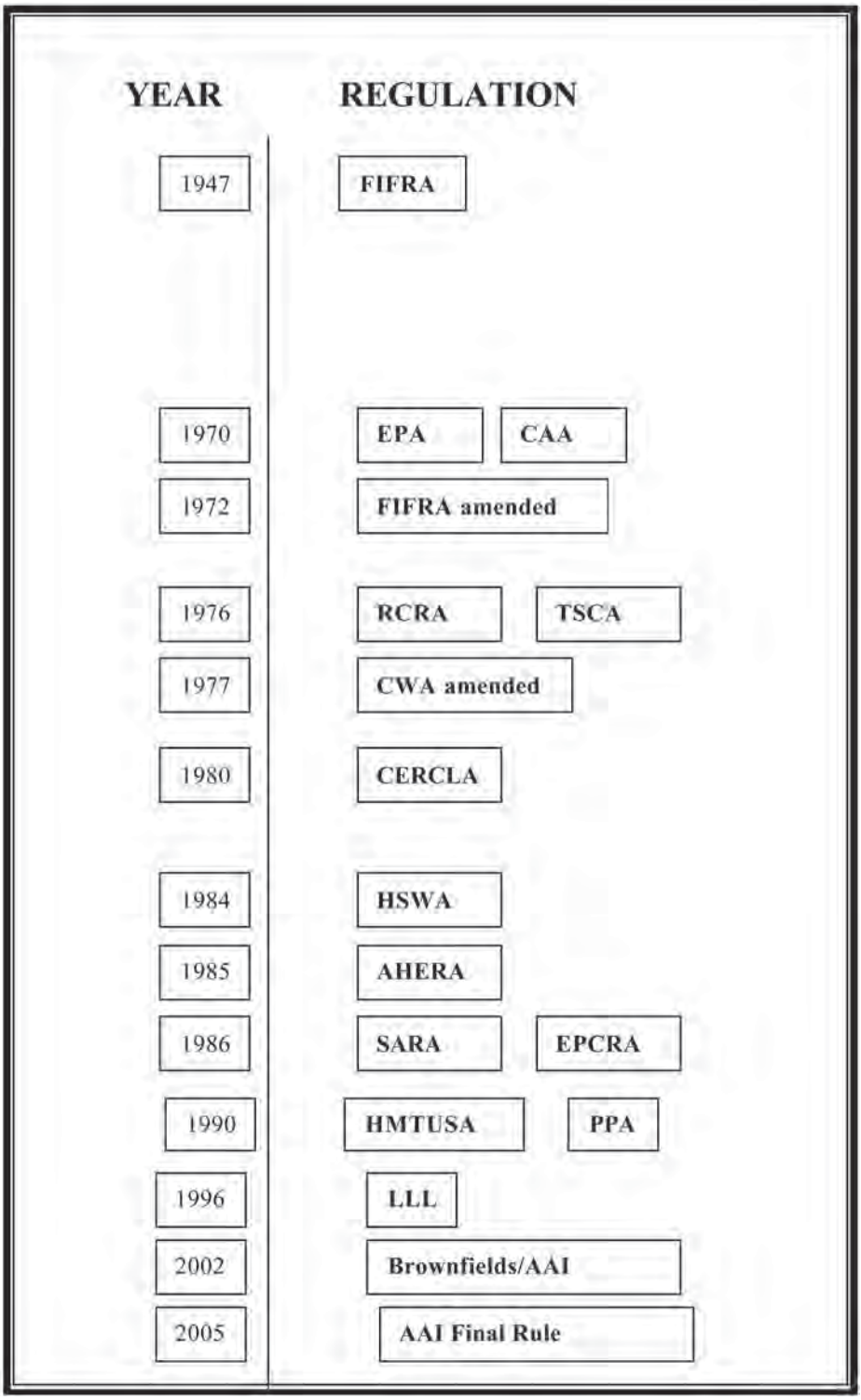


Figure 1 Conceptual timeline of federal environmental regulation.

and underground storage tank operators for petroleum products and hazardous substances. HSWA also generated stricter requirements for municipal solid waste and industrial landfills.

Toxic Substance Control Act

TSCA regulates the manufacture, use and disposal of chemical substances, and requires the substances to be tested to determine whether they pose an unreasonable risk to human health or the environment. TSCA, for example, introduced extensive regulation covering polychlorinated biphenyls (PCBs).

Title II Amendment of TSCA is the Asbestos Hazard Emergency Response Act (AHERA) that passed in 1985. It requires schools to identify and respond to their asbestos problems. The Asbestos School Hazard Abatement Act (ASHAA) passed a year earlier in 1984 provided interest-free loans to schools for asbestos control projects.

In 1990 Congress passed the Hazardous Materials Transportation Uniform Safety Act (HMTUSA). It regulates the transportation of hazardous materials in intrastate, interstate and foreign commerce. Also in 1990 the Pollution Prevention Act (PPA) passed and authorized the EPA to encourage the adoption of source reduction techniques by businesses using matching grants and information exchange on the topic.

The need for the environmental assessments can be traced to 1980, when Congress passed the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), commonly known as the Superfund Law. Together with its "companion regulation" RCRA, this body of law forms the foundation for the ASTM Environmental Site Assessment Standards.

Comprehensive Environmental Response, Compensation and Liability Act

CERCLA created a fund for cleanup of the dangerous sites based on evaluation and priority listing. The funds for the program initially came from taxes on chemical industry and 42 commercial chemicals. CERCLA was amended in 1986 through the Superfund Amendments and Reauthorization Act (SARA). The CERCLA/SARA liability provisions are very strict and require EPA to recover the cost of any cleanups from the responsible parties. Those responsible parties include all past and present owners and operators of the property. The details of this liability recovery and the defenses to it led to the development of the ASTM Phase I. This is described in more detail in the next Section on Reasons for the ASTM Phase I.

Secured Creditor Exemption

The lenders were significantly affected by the passage of CERCLA and SARA. If they could be perceived by the court as participating in management, the lenders were held liable for cleanup of the properties. To provide further protection for the lenders, EPA created a rule in 1992 which provided a secured creditor exemption defense from liability. The rule was challenged in the courts and was declared invalid in 1994, because it exceeded the authority granted to EPA in the CERCLA Law passed by Congress. In 1996

Congress amended CERCLA to provide the secured creditor exemption which provides a "safe harbor" for many customary lending practices.

Although lenders may not be held liable for the cleanup of the property, they may lose the amount of the loan if the person borrowing the money is held liable. The basis of their credit exposure has not changed. If the collateral is contaminated with hazardous material, the borrower is liable and his repayment ability is diminished.

Since the passage of the Lender Liability Law many lenders follow the rules outlined in the law to minimize their potential for CERCLA liability. In order to protect their investment, which they would stand to lose if the borrower defaulted on the loan, they conduct varying degrees of due diligence inquiry. Larger loans generally result in an increased level of inquiry.

Federal, state, and local regulations

On January 11, 2002, President Bush signed the Small Business Liability Relief and Brownfields Revitalization Act (Pub. L. 107–118, 115 Stat. 2356, "the Brownfields Amendment"). The law required EPA to develop regulations establishing standards and practices for how to conduct all appropriate inquiries. In the Brownfields Amendment, Congress included a list of criteria that the Agency must address in the regulations establishing standards and practices for conducting all appropriate inquiries

On August 26, 2004, EPA published a notice of proposed rulemaking outlining proposed standards and practices for the conduct of "all appropriate inquiries." This regulatory action was initiated in response to legislative amendments to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The final rule was published on November 1, 2005. This is often referred to as the AAI Rule. See Fig. 2.

In addition to federal regulations discussed here, many states and local governing bodies within each state have adopted environmental regulations that mirror the federal statutes. Local regulations can often be stricter than federal laws or deal with issues not covered by federal regulations. Throughout this Manual, we will stress the importance of local knowledge with respect to environmental assessments and the need for the environmental professionals to become acquainted with state and local requirements.

Reasons for ASTM Environmental Site Assessment Standards

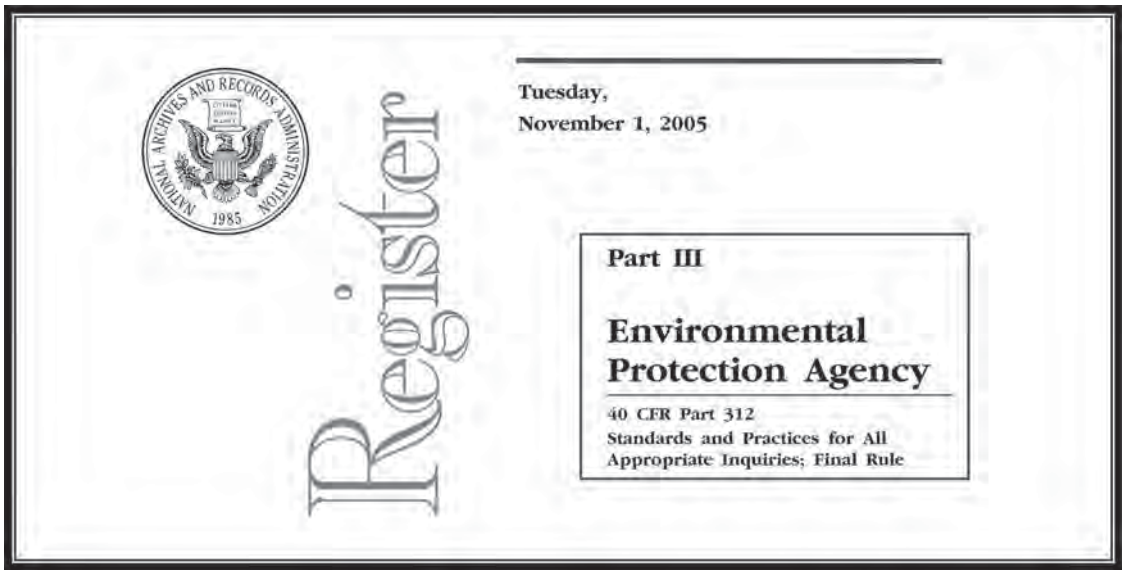
CERCLA liability issues of cleanup costs

CERCLA's scope is the broadest of any of the environmental laws. RCRA and CERCLA are considered companion statutes, because of their unique relationship with respect to pollution. While RCRA looks at proactive management of pollution control, addressing the day to day operations at a particular facility (how we manage hazardous waste to prevent pollution), CERCLA looks at the retro-

spective aspects of the pollution (who caused it, contributed to it, or owned it). RCRA is process oriented in that it considers generation, transportation, and disposal of hazardous substances. CERCLA, on the other hand, is result oriented, addressing the cleanup of polluted properties. Lastly, RCRA is compliance based, while CERCLA is focused on asset-based liability.

The far-reaching liability issues of CERCLA are the main reason behind the creation of the Standards. CERCLA liability is strict, joint and several, and retroactive. Strict liability means that fault is not a prerequisite. It does not matter if the owner was obeying the law when they disposed of the hazardous waste. Joint and several liability means that any of the parties in the lawsuit may be liable for the entire cost of the cleanup. This provision is referred to as "deep pocket," because those parties that have the money to pay for the cleanup will generally be targeted. Retroactive liability means that it does not matter when the pollutant was deposited on the property. CERCLA is result oriented by requiring cleanup of the contaminated sites regardless of how and when the contamination occurred.

Under CERCLA, the federal government generated a "blueprint" on how the hazardous substances are to be cleaned up. It is known as the National Contingency Plan (NCP). CERCLA provides that potentially responsible parties (PRPs) can clean up the sites themselves with EPA or state oversight. For example, if owners find out that the site is contaminated, they can clean it up with either state or EPA's supervision. If they determine that someone else caused the contamination, such as prior owners, they can sue to recover the cost of cleanup. On many sites, the cleanup costs are so high that the owners may have abandoned the sites. In those instances EPA and/or the state government can start actions to clean up the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Part III

Environmental Protection Agency

40 CFR Part 312
Standards and Practices for All Appropriate Inquiries; Final Rule

Figure 2 AAI Final rule—adaptation from The Federal Register.

sites, and sue PRPs for the cost of the cleanup. There is a difference between private parties and the government trying to recover response costs (costs of cleanup). Broadly speaking, the private party must prove that its costs were necessary and that the cleanup action was consistent with the NCP. If the government cleans up the site and sues, it is presumed that the cleanup action was consistent with the NCP.

In commercial real estate transactions PRPs can include buyers, sellers, mortgage holders, and operators. Three defenses against liability are if the contamination was caused by:

1. Act of God
2. Act of war
3. Third party and the purchaser had no reason to know

Innocent Purchaser Defense or Innocent Landowner Defense

For example, the owner would not be held liable if the contamination of the property was caused by earthquake (act of God) or if a War took place around the refineries in Texas (act of war). Considering the low probability of these events, the only real defense against liability for the cleanup is what is referred to in the Standards as Innocent Purchaser Defense (IPD) or Innocent Landowner Defense (ILD). The two terms are used interchangeably in the Standards and refer to any person about to become associated with the ownership of the property. In order to qualify for the ILD the purchaser must:

1. Acquire the site after the disposal or placement of hazardous substances on the property.
2. And, did not know, or had no reason to know, that any hazardous substances were present on the property.

In order to establish that the purchaser had no reason to know about the contamination the purchaser must:

1. Undertake all appropriate inquiry into the previous ownership and uses of the property and
2. The appropriate inquiry must be consistent with good commercial and customary practice.

The ILD concept was included as part of the SARA amendments in 1986 to provide protection for purchasers. The language was left to broad interpretation, and the ASTM Standards were created with the purpose of defining *all appropriate inquiry* and *good commercial customary practice*.

ASTM Standards Define: All Appropriate Inquiry

The Brownfields Amendment of 2002 provided two additional defenses. These are the bona fide prospective purchaser (BFPP) and the contiguous property owner (CPO). These two defenses along with the previous innocent landowners defense are referred to as the landowner liability protections (LLPs). Congress also included a requirement and specific guidance to EPA on developing a rule to explain how to accomplish all appropriate inquiry (AAI).

The petroleum industry successfully argued that petroleum products should not be included, as hazardous materials, petroleum, and crude oil have been explicitly excluded from the definition of hazardous substances under CERCLA. This is commonly known as the *Petroleum Exclusion*. Petroleum products are regulated under RCRA and are included within the scope of the ASTM Standards, because they are of concern in many commercial real estate transactions.

The Phase I Environmental Site Assessment Standard is designed for LLPs. In practice, it is often used for business decisions. The Phase II Environmental Site Assessment Standard was designed for ILD (now LLPs) and/or business decisions. These and other significant differences are discussed throughout this Manual.

The Phase I and Phase II Standards are continuously evolving documents. As the application of the Standard changes, the members on the Standards Committee review the developments and try to incorporate applicable changes into the Standards through the revision process. The users of the Standards are strongly encouraged to stay current on the latest revisions and modify their procedures to reflect applicable changes.

ASTM Standards are evolving documents Users/EPs must stay current on revisions

Although CERCLA forms the foundation on which the ASTM Environmental Site Assessment Standards were structured, many of the other regulations discussed provide important background for the assessment activities. Familiarity with the requirements assists environmental professionals and users of the Standards in identifying, gathering, and interpreting historical and current-use information associated with the subject property and its neighbors. Additional discussion of legal background issues associated with the Phase I and Phase II Standards is provided in the Appendices in the ASTM *E 1527 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*.

References

1. E 1527 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM 2005

2. E 1903 *Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process*, ASTM 2000

3. USEPA "All Appropriate Inquiry" Final Rule 40 CFR Part 312

4. Small Business Liability Relief and Brownfields Revitalization Act of 2002, (Brownfields Amendments), 42 USC §§9601 *et seq*.

PART ONE

PHASE I ENVIRONMENTAL SITE ASSESSMENT PROCESS

PART ONE

Chapter 1

Scope of Phase I Environmental Site Assessments

In this chapter, we will discuss issues related to:

- **History of the ASTM Standard**
- **Introducing the players**
- **Scope of E 1527**
- **Establishing scope of work with your client**
- **Understanding limitations**

History of the ASTM Standard

The first ASTM Standard was published in 1993. The actual development of that Standard began in the late 1980s. As will be explained in more detail, Superfund Liability was the driving force behind the development of the Standard. The actual law, titled the Comprehensive Environmental Response, Compensation, and Liability Act, commonly referred to as CERCLA or Superfund, was passed on 11 December 1980. There was a significant amendment on 17 October 1986, titled the Superfund Amendments and Reauthorization Act, and commonly referred to as SARA.

It took the commercial Real Estate Industry about ten years to develop an understanding of the requirements of CERCLA, and many did not appreciate the liability impacts or due diligence obligations until the ASTM Phase I Environmental Site Assessment process was published. Thus, the learning curve can be pretty steep for those with limited involvement in the Phase I process.

This book is designed to answer the common questions that arise in the application of the ASTM Standard. But before we start talking about the application of the ASTM Standard, a little history would be helpful. As mentioned above, the first Standard was published in 1993. A revised version was published shortly thereafter in 1994. Those revisions were of an "editorial" nature and concentrated on the Historical Review Section. In fact, the revisions would probably go unnoticed by a casual reader of the Standard. The next revision was in 1997. It too was largely editorial, but significant modifications were made in the Data Search Sections.

These changes were passed to clarify the original intent of the document and were based on industry input and experience, the result of using the document since 1993.

The next revision was in 2000. This was the most significant revision up until the 2005 version. There were changes throughout the document. The major changes were in the introduction of the definition of a material threat, and the concept of a Historic Recognized Environmental Condition (HREC) and activity and use limitations. There was also nearly a total rewrite of the Report Section to make it clear that the Environmental Professional had to provide opinions on all of the findings.

Up until the year 2000, the Phase I document was used primarily in commercial real estate practice. There was very little involvement on the part of EPA or State Environmental Agencies. Some states had initiated requirements or Registries of people who perform the Phase I services. Some regulators had become aware of the existence of the Phase I process and had seen or even requested Phase I documents related to a specific site.

All of this changed on January 11, 2002 when President George W. Bush signed the Small Business Liability Relief and Brownfields Revitalization Act, more commonly called the Brownfields Amendment. The Brownfields Amendment was designed to revise and clarify the approach to owning, developing, and managing contaminated or potentially contaminated properties. One of the directives required EPA to develop regulations for All Appropriate Inquiry (AAI). The Brownfields Amendment also cited the 1997 version of the ASTM Standard and indicated that it should be used until EPA completed the AAI development process. This put EPA in a position of having to develop a rule that had been largely written and commonly applied within the real estate industry for over a decade.

The Brownfields Amendment also introduced two new legal defenses. In addition to the *Innocent Landowners Defense* (ILD), which had previously been available as a defense to CERCLA liability, it added the *Bona Fide Prospective Purchaser* (BFPP) and the *Contiguous Property Owner (CPO) Defenses*. These three defenses are collectively referred to as the *Landowner Liability Protections* or LLPs to CERCLA.

In addition to adding the defenses, the Brownfields Amendment spoke to issues related to the preparer (Environmental Professional or EP) and the users (persons who would assert the defense). As mentioned previously, two important new defenses were introduced by the Brownfields Amendments. These defenses have yet to be fully assimilated by the Phase I industry. The BFPP defense allows a buyer to purchase the property with knowledge that the site is contaminated. This is important because the Phase I process was initially designed with the understanding that the ILD defense only existed if at the time of purchase, the buyer did not know, or have any reason to believe that the property was contaminated. But

along with this ability to buy contaminated property, there came continuing obligations that will be discussed again in more detail later in this document. The key point to make is that while these continuing obligations are critical to maintaining the defense, neither AAI nor ASTM fully address their implementation.

Because it became clear during the rule making process that the implementation of AAI was going to have to address many of the same issues that confronted the drafters of the various versions of the ASTM Standards, the ASTM document became a useful tool.

Chapter 13 contains a detailed comparison summary of the AAI and ASTM-05 documents. ASTM and EPA staff worked together through 2004 and 2005 to make sure that the proposed ASTM revisions did not conflict with AAI. Note that in some instances, ASTM requirements actually exceed those of AAI. That is allowable so long as the ASTM Standard remains at least as strict as that of AAI.

Introducing the Players

Phase I Environmental Site Assessments (ESAs) involved Users and Environmental Professionals as the principal players until the Brownfields Amendment required EPA to become involved. With the exception of properties that involve governmental programs and where the EPA or State equivalent is involved, there are still two basic players in an E 1527 *Standard Practice for Phase I Environmental Site Assessment Process* [1]. This ASTM Standard defines the relationship between the User and the Environmental Professional. Note that the term "Users" includes anyone who may be using the Standard. This could include lending organizations, developers, property owners, and others, including lessors, grantees, or facility operators. The Environmental Professional is the person who conducts the tasks normally associated with completing a Phase I, or who remains in responsible charge of those who perform the task elements.

We will examine the implications of the new AAI to changes made in the ASTM Standard, throughout this book. Historically, EPA was, for the most part, a passive observer of the ASTM Phase I process until the Brownfields Amendment of 2002, when EPA was directed to develop a rule. At that time, the law made specific reference to ASTM E 1527-97. EPA subsequently amended this reference to include the 2000 version (1527-00). The final rule allowed use of the 1997, 2000 or 2005 versions (1527-05) of the Standard until 1 November 2006. Now the 2005 Standard is the only ASTM version that is acceptable to satisfy AAI. It is also worth noting that the EPA Rule does allow for AAI to be satisfied without use of the ASTM Standard; however, implementation is not addressed in the Rule.

The Brownfields Amendment also directs EPA and the grantees involved in the EPA Brownfields grants program to use AAI (and by inference ASTM 1527) in administering the Brownfields Grant program. Most state environmental agencies must document that they are complying with AAI in administering the grants. As a practical matter, the EPA, the states and grantees, like the commercial real estate industry, are specifying ASTM 1527 Standards and not AAI to define their contract scope of work.

Another portion of the relationship is defined by the needs and professional responsibilities of the players. There are numerous ways for the relationship to develop. By examining one possible scenario, we will introduce the typical players in a Phase I ESA. We will use the scenario to point out numerous advantages that E 1527 affords the players.

The Banker

Bankers, lenders are Phase I users

The Standard was first published in 1993. It is February of 1992, a busy time of year for a commercial real estate lending officer in a fast-growing Florida town. The banker is ready to close on a two million dollar loan for a large industrial warehouse by the end of the month. A new corporate directive arrives that requires the performance of a Phase I Environmental Site Assessment (ESA) on all property transactions with the loan value in excess of one million dollars. The document references concerns regarding the lending of money on properties like "Love Canal." Having worked with an engineering firm in the past, the banker recalls that their brochure included environmental services. He calls the firm requesting a proposal to provide a Phase I. Following the three-bid policy (yet another procedure at the bank), he opens the Yellow Pages and calls two more environmental service firms requesting Phase I proposals.

The following morning, the banker has three proposals on his desk. The first includes two pages describing the services, five pages of disclaimers and a preliminary cost estimate of $30 000. The second proposal includes a 5-page description of the scope of services, one page of fine print disclaimers and a cost estimate of $8000. The third proposal simply reads: Phase I Audit on property described above $500.

The banker reviews the information and begins to consider his options. He is well aware of the fact that his client has a choice in selecting a bank. The bank will pass through the cost of the Phase I ESA to the client as part of the closing costs, but the client will probably want to know how (and why) the money was spent. Since the client is paying for the Phase I ESA, he also has some input in who is hired. The banker would like to disregard the lowest bid, because he asked for an assessment and the bid is for an audit. He knows that the two are entirely different. The firm he used in the past submitted the middle bid. They are proposing to look into several items he never imagined would have been included in the

scope of an environmental site assessment. The highest bid includes a laundry list of services, of which many will not have any effect on his assessment of the loan associated with the property. What does he do now? Whom does he trust, and how is he going to justify the cost of the assessment to the buyer (client) applying for the loan?

The ASTM Standard defines this player as *the User*. Had the Standard been published, the banker's job would have been considerably easier. When he requested the proposals, he would have specified that he wanted the Phase I ESA performed in accordance with the scope of E 1527. The banker could have also used the scope of the Standard to compare it with the proposed scope of work, and could have directed the engineering firms to include the Standard-required elements and eliminate all the other unrelated services. This would have streamlined the bidding process and enabled him to receive comparable bids. Lastly, he could have discussed the Standard with the buyer and guided the buyer in deciding which environmental professional to hire.

The Buyer

Purchasers are also Phase I ESA users

In our 1992 scenario, this client is an entrepreneur. He sees the opportunity of purchasing this old warehouse and using it to multiply his fortunes. When the banker recommends that he spend about $8000 to check this property for contamination, he has a difficult time believing that the money is well spent, and cannot see how it benefits him in the long run.

E 1527 classifies our businessman also as *a* "*User*." Had the Standard been published, the banker could have used it to explain the concept of *Due Diligence, Potentially Responsible Parties, All Appropriate Inquiry* and other relevant concepts covered by the Standard. The buyer would then have a better understanding of the implications associated with the transaction and the reasons for spending the money on the ESA. The decision regarding whether to perform a Phase I ESA at all, and the level of inquiry the buyer selects, boils down to his and his lender's risk tolerance. They can choose to accomplish the *Due Diligence* that satisfies AAI, or be comfortable with the risk of potentially losing their investment and owning the liability for cleanup.

In actuality many users such as our hypothetical buyer are using the Phase I process to do something it wasn't intentionally designed to accomplish, and that is to identify business risk that might be associated with environmental issues. The ASTM Phase I process is conservative in that it will identify many issues that would never rise to the level of Superfund liability. So many Users don't really care about that Superfund liability; rather, they just want to identify issues that might cost them money, impact their development plans, or result in some kind of non-Superfund liability to, for example, a third party neighbor.

The Environmental Professional

Environmental Professionals are the Phase I ESA Preparers

Continuing with our 1992 story line, this is the environmental professional (EP) who worked with the banker in the past. He understands what *Due Diligence* is all about and realizes that a Phase I ESA means a lot of different things to different people. He sits down with his attorney, prepares a scope of services with appropriate disclaimers, and hopes that the banker accepts his proposal. He asks a fair price, perhaps a little on the low side, because there is also a possibility that if contamination that warrants further investigation is discovered, he will be in a good position to provide those additional services, or a even a remediation contract.

The Standard defines this individual as *the Environmental Professional* (EP). The EP could have also benefited from the about-to-be-published Standard. He could have used it to educate both the buyer and the banker about the significance of the ESA activities that he was about to perform, justify the costs for his services, and minimize the use of his attorney by using the scope of the Standard to limit the scope of his services.

To bring the story forward to today: The parties may wish to comply with AAI, because they have heard that it is good practice, they want to make sure they have the LLPs, or they may be involved in a project related to Brownfields grants. In any of those instances, one can comply with AAI without using the ASTM Standard. The principal difficulty is not unlike that discussed in the 1992 pre-Standard scenario described above: How do you decide what level of detail is required? In addition, there are many areas where ASTM qualifies language found in AAI that could be interpreted very broadly.

One additional issue should be considered if we elected to perform AAI without reference to ASTM. There are a number of areas where ASTM is more stringent than AAI. Since the ASTM Standard has been generally considered representative of good commercial and customary practice, there may be some liability in using AAI criteria that fall short of ASTM criteria. The ASTM Standard is likely to be considered the benchmark by the User or the courts.

Scope of E 1527

Prior to the publication of the first edition of the ASTM Standard on Phase I Environmental Site Assessments, the users and the environmental professionals had to develop the ESA scope on their own. Consequently, Phase I assessments came in many variations. On one hand, the users were seeing Phase I reports without any interviews or historical research. Some reports consisted of "drive-by" photo documentation without any evidence of the EP ever setting a foot on the property. On the other hand, Phase I sometimes included issues such as radon, electromagnetic radiation, clean air issues, fire hazards, and structural evaluations of build-

ings, which are not CERCLA issues. In summary: The term "Phase I" meant different things to different people. The Phase I Standard was developed by ASTM through its Committee E-50 on Environmental Assessment to establish uniform (standardized) site assessment practices. The intent was to define some of the due diligence responsibilities of the participants (our referenced players) in a commercial real estate transaction. Through standardization, the E-50 Committee made it possible for the Phase I ESA to mean the same thing to different people.

Let's examine the scope section of the Standard and see how the EPs can apply it to their work. This section of E 1527 defines three essential issues: purpose of the Standard, objectives of the Standard and considerations beyond the scope of the Standard. Let's look at each separately.

Purpose

Scope defines limits of ESAs: RECs with respect to CERCLA & PPs designed for LLPs

In the language of the Standard, the purpose of E 1527 is to define a practice for conducting Phase I Environmental Site Assessments. The EP is going to be considering only a range of contaminants covered by CERCLA and petroleum products. The Phase I Standard is designed to permit the user to satisfy one of the requirements for the *landowner liability protections* (LLPs) to CERCLA liability, that is, the practice that constitutes "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined at 42 U.S.C. § 9601(35)(B). The goal of the Phase I ESA is for the EP to identify *recognized environmental conditions* (RECs).

Objectives

The objectives spelled out in Section 1.2 of the Standard were the guiding objectives during the development of the Standard. They included having a written document, with a standardized level of quality assurance requirements which were practical and reasonable. Another objective for developing the Standard was to clarify what *appropriate inquiry* meant, so that it could be used as a guidance document in the legal interpretation of CERCLA LLP issues.

Considerations Beyond the Scope

E 1527 has limitations. Some of the limitations are listed in the Purpose Section of the Standard. Other limitations appear elsewhere in the Standard and will be discussed in the following chapters. The EP is sometimes asked to, or is inclined to, include issues in the Phase I ESA that are beyond the scope of E 1527. The user may not be interested in LLPs and is using the Phase I ESA for business decisions. Whether or not non-scope issues should be included as part of the Phase I ESA work will depend on how the EP defines the scope of services with the user.

Establishing Scope of Work with Your Client

During the contracting stage in anticipation of the performance of Phase I ESA, the EP and the user have three basic options as discussed below:

- Use E 1527 to define the scope.
- Define a scope different from E 1527.
- Use E 1527 scope and define any additional services beyond the scope.

Using E 1527 scope

The first option, using E 1527 to define the scope of the assessment, simplifies the scoping process. The scope agreement may simply state, "We agree to perform Phase I ESA in accordance with the scope and limitations of the ASTM E 1527-05." This will work if the client is familiar with the Standard and has sufficient understanding of the implications associated with such a statement. It is often helpful to provide the client with more information. This can be a relatively simple task to accomplish by using the language directly out of the Standard. Figure 1.1 is an example of an expanded statement of the Phase I ESA scope, providing the user with significantly more information.

The scope statement in Fig. 1.2 was extracted directly from E 1527. It uses the terminology defined by the Standard. The EP did not create any new or unique terminology that would require lengthy review by a group of attorneys. The process of standardization has already accomplished that. The hard working committee members involved in the Standard development are experts in their respective fields, including attorneys. Over several years, they refined the document until all could agree to publish it. Having said that, we have to recognize that the Standard is voluntary. This means that the "players" do not have to use it to conduct Phase I ESAs. The user and the EP may believe that they can develop a more appropriate scope and use the second option.

Defining different scope

The second option, defining a scope different from E 1527, which could include using the EPA AAI final rule with no reference to ASTM, is a task that should not be taken lightly. It poses many pitfalls for the parties involved and generally creates weaker documents than those written using the Standard. The publication and wide acceptance of the ASTM Standard made this procedure even more difficult, as the parties in the transaction eventually may have

> 1.2 *Objectives*— Objectives guiding the development of this practice are (1) to synthesize and put in writing good commercial and customary practice for *environmental site assessments* for *commercial real estate*, (2) to facilitate high quality, standardized *environmental site assessments*, (3) to ensure that the standard of *all appropriate inquiry* is practical and reasonable, and (4) to clarify an industry standard for *all appropriate inquiry* in an effort to guide legal interpretation of the *LLPs*.

Figure 1.1 Objectives from ASTM E 1527-05.

to defend the scope they chose against the prescribed scope of the Standard. The following chapters bring some of these difficulties and pitfalls to light.

Using expanded E 1527 scope

The third option, using the E 1527 scope and defining additional services, is a common method used to meet the user's needs. Some users and EPs refer to the expanded scope of services as *Phase One and One Half*. How the additional services are incorporated into the scope of work is a business decision, governed by unique aspects of the particular transaction. This book presents some of the general concepts that may be employed.

Including out-of-scope items in the scope of E 1527 always complicates the process and dilutes the simplicity of a standardized approach. To minimize the detrimental effect, the non-scope issues are often addressed in a separate addendum or under a separate contractual agreement.

Understanding Limitations

Minimum standard Users' risk tolerance

E 1527 is often referred to as a Minimum Standard. Minimum Standard does not mean that the Standard is in any way inadequate. Attorney Steven Hansen, in his discussion on the issue of Minimum Standards, notes that all Standards, by definition, are Minimum Standards and since Standards are the consensus of the best minds on the subject, it is impossible to create anything but a Minimum Standard [2]. However, the needs of the client may dictate a significantly higher or specialized level of inquiry, and the scope of the assessment may have to be expanded to meet those

"XYZ agrees to perform a Phase I ESA of the ABC property in accordance with the scope of ASTM E 1527-05. The purpose of this practice is to define good commercial and customary practice in the United States of America for conducting an environmental site assessment[1] *of a parcel of* commercial real estate *with respect to the range of contaminants within the scope of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. §§9601 and* petroleum products. *As such, this practice is intended to permit a* user *to satisfy one of the requirements to qualify for the* innocent landowner, contiguous property owner, or bona fide prospective purchaser *limitations on CERCLA liability (hereinafter,refered to the the "*landowner liability protections," *or "*LLPs*"): that is, the practice that constitutes "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined at 42 U.S.C. § 9601(35)(B). Additionally, an evaluation of* business environmental risk *associated with a parcel of* commercial real estate *may necessitate investigation beyond that identified in this practice.*

Figure 1.2 Example of Phase I ESA statement of scope.

needs. For example, the reasons for expanding the scope may be the user's need to answer questions on issues of radon, wetlands, lead, compliance, reporting issues, and asbestos, just to name a few.

Often used for a purpose for which it was not designed

E 1527 was designed to address the LLPs to CERCLA. However, this Standard is often used for making other business decisions. Consequently, it is often used for a purpose for which it was not designed. This creates unique limitations and new liabilities that tend to be very transaction specific. Both users and environmental professionals need to proceed with caution when E 1527 is used for business decisions.

E 1527 does not provide any guidance beyond the defined scope. E 1527 also does not address any of the safety issues that may be associated with ESAs. Chapter 7 on Safety and Health discusses some of these issues.

ASTM has been approved as a process for demonstrating AAI, but both AAI and ASTM constitute only part of the requirements for establishing one of the LLPs to CERCLA. Additional requirements have resulted from the passage of the Brownfields Amendment. Prior to that time, there was a requirement for documentation that addressed sale price when compared to market value, as well as identifying specialized knowledge with respect to a property transfer. However, as a practical matter, the users relied on the Phase I document to satisfy the additional requirements for CERCLA liability protection. The Brownfields Amendment resulted in significant changes. First, it requires the user to become more involved in the process, and that involvement is incorporated in the 2005 version of the Phase I. The Brownfields Amendment also identified continuing obligations, most of which begin after the acquisition of the property. Those obligations are not addressed in ASTM or AAI. Specific language was included in Section 1.1.3 to alert the users to this issue.

As we will discuss in later chapters, the decisions associated with the purchase of the property, and level of inquiry selected, depend on the risk tolerance of the user. Most of the continuing obligations are likely to be encountered in situations involving a BFPP. This is because those sites have identified contamination on site which may need to be addressed.

1.1.3 *CERCLA Requirements Other Than Appropriate Inquiry*—This practice does not address whether requirements in addition to *all appropriate inquiry* have been met in order to qualify for the *LLPs* (for example, the duties specified in 42 U.S.C. § 9607(b)(3)(a) and (b) and cited in Appendix X1, including the continuing obligation not to impede the integrity and effectiveness of *activity and use limitations* (AULs), or the duty to take reasonable steps to prevent releases, or the duty to comply with legally required release reporting obligations).

Summary

In this chapter, we provided a brief history of the Phase I Standard, discussed the impact of the Brownfields Amendment and AAI, and introduced some of the terminology used in the Standard. We limited our discussion to just four types of "players" in the Phase I ESA. These were the banker, the owner, the environmental professional and the regulator. We identified the scope of the Standard and how it can be applied to establishing the scope of work with your client. Finally, we also touched on some of the limitations of the Standard.

This chapter establishes the foundation for the rest of this book. To those unfamiliar with E 1527, some of the language used thus far may seem ambiguous, insufficiently defined, or even abstract. As with any language, the impact of E 1527 cannot be truly appreciated until the "players" become fluent in its use. Remember the goal of standardization: The same meaning to different people. The manner in which the Standard begins to accomplish that goal is through common terminology. In the next chapter that addresses terminology, the language of the ScopeSection of E 1527 will begin to take on a clearer meaning that is eloquent in its simplicity.

References

1. E 1527 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM 2005

2. Steven W. Hansen, "Using Standards in Defending Product Liability Cases," ASTM Standardization News, page 40, February 1996

3. USEPA "All Appropriate Inquiry" Final Rule 40 CFR Part 312

PART ONE

Chapter 2

Speaking the Language—Terminology

In this chapter, we will discuss issues related to:

- **Reasons for standard terminology**
- **Terminology of AAI**
- **Terminology of E 1527**
- **Looking at sources of related terminology**

Reasons for Standard Terminology

Standardized terminology enables regulators, users and producers to speak the same language without having to explain the meaning of every technical term used. When the players in a commercial real estate transaction utilize common terminology, it speeds up the communication process, resulting in an efficient use of time and resources.

Same term means different things to different people

In the last chapter, we introduced a simple scenario of four Phase I Environmental Site Assessment players: the banker, the buyer, the environmental professional (EP), and the regulator. In a real-life commercial transaction, there are often numerous other interested parties such as lawyers, real estate professionals, appraisers, trustees, grantees, developers, and others. Additionally, the term *environmental professional* may include an engineer, a scientist, a biologist, or a geologist. All of these players use technical jargon associated with their specific profession or specialization. For example, when asked to define *construction debris* these individuals readily provide numerous and varying definitions. In some of the Phase I reports it is used synonymously with the term *demolition debris*. This becomes a problem when one of these individuals writes a report and different interpretations begin to surface. Standardization defines common definitions for all Phase I players. E 1527 [1] purposely draws a distinction between these two terms in the definitions found in Section 3.2. They read:

Construction debris—concrete, brick asphalt and such other building materials discarded in the construction of a building or other improvement to property.

Demolition debris—concrete, brick, asphalt and other such building materials discarded in the demolition of a building or other improvement to property.

Although very similar, the two terms can have significantly different implications with respect to the subject property. The distinction can provide information with respect to age and content of the materials and activities (construction, demolition or dumping) that occurred at the property. The photograph in Fig. 2.1 depicts demolition debris that came from numerous sources off-site and has been used to backfill the lake. The age and content of the materials are not known, and it may be difficult for the environmental professional to form opinions with respect to the potential impact of the backfill on the property.

The photograph in Fig. 2.2 depicts construction debris associated with the recent completion of a new building. This pile of materials does not significantly affect the environmental conditions of the property, and the age of the materials can readily be determined.

Once the Standard is published, does it mean that everyone who performs or uses Phase I ESA will use the same terminology? Of course not! Does it matter? Not every time. If the result of the ESA satisfied the user's need, the ESA report generally ends up in a file never to be seen again. It will remain in the file unless something

Figure 2.1 Demolition debris from off site (provided by BAI, graphic assistance by GRT).

goes wrong down the line. When this happens, some interested party locates the Phase I report and begins to scrutinize it in great detail.

Let's look at an example where things went wrong and resulted in a litigation claim. At issue in this case was the definition of the term *practically reviewable*. The attorney's definition varied from the definition in the Standard.

Practically reviewable information

After acquiring a piece of property, the purchaser started on the construction of a warehouse. Near the property boundary, the construction crews encountered petroleum-contaminated soil. The contamination came from an abandoned leaking underground storage tank on the neighboring property. The purchaser sued the environmental professional. Handing the EP a copy of a document from the public agency file, the attorney asks: "Mr. EP, in your report, how could you have missed the agency information that shows the adjacent property had a leaking underground storage tank? This agency's letter is public information, readily available, easily reviewable, and indicates the strong possibility of migration onto subject property." The EP has not seen this letter before today. The EP reviews the agency letter, looks over his report, searches through his notes, pulls out his copy of the Standard, and flips through it. After several minutes, wiping cold sweat from his brow, he turns to the attorney and explains: "According to my notes the information kept by the agency was only chronologically organized and therefore, as defined in Section 3.3.24 of the Standard, was not practicably reviewable.

Figure 2.2 Construction debris from a new building on site (provided by BAI, graphics assistance by GRT).

Familiarity with E 1527 terminology, appropriate application of it during the Phase I ESA process and good documentation helped the EP in our example to ensure the validity and strength of his Phase I ESA report.

From a historical perspective, the members of the E-50 committee consisted of scientists, engineers, biologists, architects, geologists, real estate developers, consultants, EPA regulators, state officials, lawyers, lenders, investors, property owners, and others. All of these interested parties did not necessarily agree on all the issues, but they voted to publish a Standard, which included standardized commonly defined terms. The terms are an integral part of the Standard and are critical to an understanding of the Phase I ESA practice and its use.

Terminology of AAI

Before discussing the ASTM terminology let's take a brief look at the AAI terminology. Only eight terms are defined in section 312.10 of the EPA AAI Final Rule.

The following are defined in AAI and were incorporated into the Definitions Section of ASTM E 1527-05:

- Abandoned Property
- Adjoining Property
- Data Gap
- Good Faith
- Intuitional Controls

The other three terms which are defined in AAI but not specifically defined in the ASTM Terminology Section are defined elsewhere in the ASTM document:

Date of acquisition or purchase date is discussed at several places in Section 4 and is footnoted in this same section to cite AAI. The ASTM Standard goes on to explain that if there is no transaction involving an acquisition, then the date is the same as the date of the intended transaction.

The other two terms are also covered in the ASTM Standard. The definition of Environmental Professional is taken directly from the AAI and is incorporated by reference in the Terminology Section and as an Appendix X-2 of the ASTM E 1527-05. The AAI defined term "relevant experience" is used in the definition of an EP. It is also included in Appendix X-2.

Note that because of copyright issues many ASTM concepts are used in AAI but with different terminology. ASTM includes the eight terms and definitions described above taken directly from AAI. But when the AAI was being drafted, and they wanted to use an ASTM term, they would have had to cite the ASTM Standard as a source. Since they did not want to cite ASTM as a source in the EPA Rule, they had to develop different language. As a conse-

quence there are many terms in AAI that are similar to terms found in ASTM. An example would be that AAI uses the language "conditions indicative of a release or threatened release" in place of the ASTM term "Recognized Environmental Condition" (REC).

These differences in terminology can be found throughout the documents. They should not be interpreted as subtle differences in meaning. On the contrary, great effort was taken to try to convey the same thought using different words.

Terminology of E 1527

E 1527 Section 3. Definitions, descriptions and acronyms

The language is defined in Section 3 of E 1527. The section consists of two subsections: Definitions (Section 3.2) and a list of acronyms (Section 3.3). When reviewing the Standard, readers will note that many of the terms are italicized. Generally, the italicized words in E 1527 alert the reader to the fact that there is a definition associated with the term.

In the first group of definitions, 97 terms are defined. Terms such as *actual knowledge, appropriate inquiry, due diligence, material threat, obvious*, and *practically reviewable* are given meaning within the context of the Standard. Those of you familiar with previous versions of the standard will note that there used to be two sets of definitions. One set was common terms in general use, and one set was terms specific to E 1527. Over the years these distinctions have blurred and all terms were combined into one section in the 2005 version.

As we go through the various sections of the Standard, we will revisit many of the definitions and demonstrate how they are used in practical applications of E 1527.

Section 3.3 provides explanations for the 27 acronyms used in the Standard. Many of these are related to EPA regulatory programs and are common to the environmental industry.

AAI terminology: "conditions indicative of a release or threatened release"

ASTM terminology: "presence or likely presence of any *hazardous substances* or *petroleum products* on a property under conditions that indicate an existing release, a past release or a material threat of a release … "

Figure 2.3 Comparison of terminology.

Looking at Sources of Related Terminology

Transaction Screen guides

E 1527 was developed concurrently with E 1528—*Transaction Screen* [2] in the early 1990s. The users on the E-50 committee felt that many commercial transactions involved properties that did not require the level of inquiry prescribed by the Phase I ESA Standard. They felt that there was a need in the industry for a standardized practice that could be performed by a *non-environmental professional*. The Transaction Screen was designed for just that purpose. It contained a terminology section identical to earlier versions of E 1527. Since the publication of the EPA AAI Rules, the Transaction Screen no longer satisfies the requirements for AAI, because it is not as rigorous as required by AAI. The Transaction Screen has been revised, and now can be used to conduct limited environmental due diligence such as identifying business risk. It should not be used to satisfy AAI. The purpose of the revised Standard is shown in Fig. 2.4 below.

Another document, ASTM E 2091 *Standard Guide for Use of Activity and Use Limitations* [3], has relevance to the Phase I process. It provides a discussion of general terminology including institutional and engineering controls.

ASTM D 653 and E 1903

On occasion, the user knows or has a strong suspicion that the subject property is contaminated. Phase I ESA investigations are sometimes conducted for the purpose of identifying and selecting recognized environmental conditions while knowing that further inquiry will be conducted in a Phase II portion of the project. The E 1903 Standard [4] and related Standards associated with the Phase II investigations contain numerous applicable terminology sections. ASTM published a separate publication titled *ASTM Standards Related to Phase II Environmental Site Assessment Process* [5]. It is a collection of Standards associated with Phase II work. D 653 [6] is one of the Standards included in this publication and contains 32 pages of ESA terminology. The Terminology Standard was developed jointly by the ASTM D-18 Committee on Soil and Rock and the Committee on Definitions and Standards of the Geotechnical Engineering Division of the American Society of Civil

Purpose— The purpose of this practice is to define good commercial and customary practice in the United States of America for conducting a transaction screen for a parcel of *commercial real estate* where the user wishes to conduct limited environmental due diligence (i.e. less than a Phase I Environmental Site Assessment). This practice will not satisfy the practices that constitute all appropriate inquires into the previous ownership and uses of the property consistent with good commercial or customary practice as defined in 42 U.S.C. §9601(35) (B) to establish the CERCLA Landowner Liability Protections (LLPs). If the driving force behind the environmental due diligence is a desire to qualify for one of the CERCLA LLPs, this practice should not be applied. Instead, the ASTM E 1527 Practice for Environmental Site Assessments: Phase I Process may be used.

Figure 2.4 Purpose of E 1528 Transaction Screen.

Engineers. The two groups function together as the Joint ASCE/ASTM Committee on Nomenclature in Soil and Rock Mechanics.

Summary

In this chapter, we learned the importance of using the terminology defined by the Standards. We learned that the terms defined in the terminology section of the Standard are an integral part of the Phase I ESA and are critical in understanding E 1527. We demonstrated the importance of appropriate terminology in the practical application of E 1527. We identified additional ASTM sources of information and terminology associated with the Phase I ESA.

References

1. E 1527 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM 2005

2. E 1528 *Standard Practice for Environmental Site Assessments: Transaction Screen Process*, ASTM 2006

3. E 2091 *Standard Guide for Use for Activity and Use Limitations: Including Intuitional and Engineering Controls*, ASTM 2005

4. E 1903 *Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process*, ASTM 1997

5. *ASTM Standards Related to the Phase II Environmental Assessment Process, compilation*, ASTM 2000

6. D 653 *Terminology Relating to Soil Rock and Contained Fluids*, ASTM 2000

PART ONE

Chapter 3

Significance and Use of E 1527

In this chapter, we will discuss issues presented in Section 4 of the E 1527-05 Standard related to:

- **Practical application of E 1527**
- **Use of E 1527**
- **The principles behind AAI**
- **The principles behind E 1527**
- **The shelf life of reports**
- **Rules of engagement**

Practical Application of E 1527

The ASTM Standard E 1527 [1] was originally developed to satisfy one of the requirements of the *innocent landowner defense* under CERCLA. It was modified in 2005 to incorporate the new LLPs. Much of this effort was directed at complying with AAI as defined by the EPA.

Broader application than ILD

People usually do not use the Standard for AAI or to establish LLPs. It is more commonly used to help make business decisions regarding environmental impacts that might affect the property. The EPA requires grantees participating in the Brownfields program to follow AAI. But these projects represent a very small percentage of commercial real estate transactions. It is interesting to note that the ASTM Standard is used in other countries throughout the world. None of these applications have anything to do with LLPs since CERCLA and the related liabilities are a uniquely American law. The fact that it is used outside of the legal context in which it was developed is an indication of its wider value in identifying environmental issues.

During the 1997 revisions of E 1527 [1], it became apparent that the needs of the user may extend beyond the CERCLA. In order *not* to limit the application of the Standard, the committee voted to include language regarding business risk that recognizes significantly broader application of this practice. The broader application of the Standard is discussed in Sections 4.1 and 4.2 of E 1527. In this chapter we will review some specific uses and applications that demonstrate the practical impact of these Sections.

Voluntary Use

Before we begin discussing specific applications of E 1527, it is important for the environmental professional (EP) to understand that the use of the Standard is voluntary. To this day, many commercial real estate transactions are concluded without the Phase I Environmental Site Assessment (ESA) being performed. Three common reasons are:

First, a buyer with financial resources to pay cash is not required by a lender to perform a Phase I as a loan condition. His risk tolerance may be such that he believes that the property is not sufficiently impacted by contamination to cause him substantial financial hardship. The buyer may have also taken different steps to limit his liability such as other investigations or legal indemnifications.

Buyers don't always do Phase I ESAs

Second, the use of the property or the loan value is often used by lenders to decide what level of inquiry to use. The lender may not require Phase I on commercial residential use; apartment use may dictate transaction screen, or some other less involved due diligence. It is also common practice by lenders to select loan limit values that automatically require different levels of inquiry. For example: Loans under $250,000 require no Phase I. Any loan more than $250,000 requires a Phase I ESA. The risk of a less than $250,000 loan turning into a $500,000 or more liability is not sufficiently high for the loan institutions to change the approach.

Business decisions depend on risk tolerance

As environmental scientists, we often fail to understand the reasoning behind such "risky" decisions. EPs look at the condition of the property, focusing on contaminants, associated user liability and potential EPs' liability. Because EPs have seen numerous examples where the cleanup cost exceeded the purchase price of the property, the cost of the property is not as significant. EPs' training and appreciation of contamination issues tend to make us believe that Phase I ESAs cannot possibly be adequate and choosing anything less is irresponsible. The users, on the other hand, see the condition of the property from a business decision point of view and the price is important. The business decision is based on risk tolerance generally different from EPs'. The voluntary nature of the Standard allows the users to incorporate their risk tolerance into the business decision. Risk tolerance is not necessarily another word for luck, although luck may be a component. A significant portion of user risk tolerance may come from the probability of environmental problems and past experience. Statistically, how often did a $50,000 loan turn into a $500,000 liability? Did it happen to the user or someone in the geographic area close to the site? Low frequency of occurrence may be perceived as an acceptable risk.

Third, the user may decide that the Phase I ESA performed to the E 1527 is not appropriate for the particular property and choose a different type of ESA. They may be concerned with an entirely different set of contamination issues not specifically covered by E 1527 such as radon, lead, asbestos or indoor air quality.

User May Not be Seeking LLPs

Business risk usually does not mean LLPs

For a user aware of potential contamination on the subject property, LLPs may not be the reason for performing the Phase I. The user may not even be concerned about exerting a LLP defense. The user is often using the Phase I ESA as a commercially prudent and reasonable inquiry to address business risk concerns. Thus, the Phase I ESA can be applied as the first step in addressing the contamination issues. The contamination issues may be limited to CERCLA and petroleum products (which are included in the scope of the E 1527) or may include other contaminants such as asbestos and lead (which are beyond the E 1527 scope). It is imperative for the EP to be cognizant of the user's intent. The user, with the assistance of the EP, may elect to perform a more comprehensive inquiry by expanding the scope or limit the scope to address specific business risk concerns.

Designed to Identify Recognized Environmental Conditions

Both the Brownfields Amendment and AAI include broad based principles aimed at obtaining reasonably available, commonly known or other information that could be determined by inspection. The way this actually occurs in the ASTM Standard is that a prescriptive set of actions is laid out to help identify *recognized environmental conditions* (RECs). RECs is not a term found in CERCLA, but finding RECs is a goal of the ASTM Phase I process. The ASTM Standard is structured in such a way that many findings do not rise to the level of a REC. Most RECs would not be significant enough to create a liability under CERCLA. In other words, the process is very conservative in that it tends to identify issues well below the threshold that would involve CERCLA liability. The definition of a REC is shown in Fig. 3.1.

1.1.1 *Recognized Environmental Conditions*—In defining a standard of good commercial and customary practice for conducting an *environmental site assessment* of a parcel of *property*, the goal of the processes established by this practice is to identify *recognized environmental conditions*. The term *recognized environmental conditions* means the presence or likely presence of any *hazardous substances* or *petroleum products* on a *property* under conditions that indicate an existing release, a past release, or a *material threat* of a release of any *hazardous substances* or *petroleum products* into structures on the *property* or into the ground, ground water, or surface water of the *property*. The term includes *hazardous substances* or *petroleum products* even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* are not *recognized environmental conditions*.

Figure 3.1 The E 1527 definition of recognized environmental condition.

The first priority for the environmental professional is to identify RECs as they are defined above. The definition is very broad. EPs often struggle with the issue of what to include as a REC in the report and what to leave out. Similarly, many users struggle with large lists of RECs and prefer to see reports with no RECs.

In the 2000 version of the ASTM Standard a definition of material threat was added to help clarify the ASTM definition of a REC. The REC definition is substantially the same in the 2005 version as it was in 1993. (There was a minor change in the *de minimis* language in the 2005 version.) There is little disagreement about what constitutes a REC when it involves a past release or a present release. They are documented and in many cases may be actually visible. Major disagreement is usually related to the REC concept of *material threat* of a future release. It was for this reason that material threat was defined in the 2000 revision.

The presence of a hazardous material or petroleum products when there is no indication of a past or present release is keyed on the judgment of the EP with respect to whether the conditions indicate a material threat of a future release. Although reasonable people differ on what constitutes a material threat, all EPs need to explain the logic involved in their determination.

The other area of disagreement among EPs is the concept of likely presence. Since a REC is the presence or likely presence, there is more judgment required in a determination of likely presence. As discussed above, the concept of presence is usually straightforward—it is observed. Likely presence exists when in the opinion of the EP there is a high probability that a hazardous substance is present. There are two situations when this typically occurs. One is situations where there is limited data, but a release is documented with only limited information available on the size or dispersal of the release. A judgment has to be made about whether there is a likely presence. An example may be related to an off site release that is up-gradient and could result in contamination entering the property as a groundwater plume. The second common situation is when past history of land use (old gas station, dry cleaner) suggests that releases probably occurred. In this case, the EP is opining that the historic operating practices associated with a use of the property are enough to indicate a likely presence even though there may be no observed contamination.

> 3.2.52 *material threat*—a physically observable or *obvious* threat which is reasonably likely to lead to a release that, in the opinion of the *environmental professional*, is threatening and might result in impact to public health or the environment. An example might include an aboveground storage tank system that contains a *hazardous substance* and which shows evidence of damage. The damage would represent a *material threat* if it is deemed serious enough that it may cause or contribute to tank integrity failure with a release of contents to the environment.

Figure 3.2 Material threat definition from the E 1527-06 Standard.

EPs must explain the logic involved

The Report Section of the ASTM Standard was revised in 2000 and again in 2005 to make it clear that the EP must do more than provide a list of RECs. The EP has some latitude in what they will call a REC. It is important to the user to understand the logic and reasoning of the EP. The ASTM Standard is very specific in requiring the EP to list all of the findings and then explain why they are or are not considered to be a REC. If not actually observed, this REC opinion discussion is focused on explaining if there is a material threat or if there is a likely presence.

Figure 3.3 depicts chemical storage in steel 55-gallon drums. Let's assume that while conducting the Phase I, the EP noted this area. The nature of the chemical is such that it could cause significant contamination to the property if it was spilled. None of the drums appear to be leaking. Some of the drums have some rust but they are not cracked or broken; they are sealed and appropriately labeled. The current owner informs the EP during the interview that the drums will be removed from the property. The EP takes a photograph of the drum storage and documents the content of the interview in the report. He decides not to list this as a REC, reasoning that the condition does not constitute material threat of a release and explains his reasoning in the report. He might reason that there was no evidence of spills, the drums were located in a protected area of the facility and the floor was concrete with no signs of cracking. The simple presence does not constitute a material threat of a future release. The lender sees "no RECs" in the report, files the report and lends the money.

Figure 3.3 Chemical storage in drums (provided by BAI, graphic assistance by GRT).

Broader application than ILD

Now let's consider the identical scenario with one difference. The EP lists the drums as a REC, because he observes that there is no secondary containment, so that if the chemical was to leak it could result in an environmental impact on the subject property. In the opinion portion of the report, he describes the condition of the drums (some rusted), provides the user with photographs of the drums and opines that considering all of the other information in the report (condition of drums, poor management practices, vague information of operational practices), this is a REC based on his conclusion that it constituted a material threat of a future release. While it did not appear to adversely impact the subject property, a release could have a significant impact because of shallow groundwater under the facility.

The day after the EP visited the site, while removing the chemical drums from the property to enable the buyer to move his operation in, the forklift brakes fail and the forklift punctures several of the drums. The chemical is washed off the pad with water and contaminates the property. A month after the sale the contamination migrates onto the neighboring property and kills the landscaping. The neighbor investigates and finds out about the chemical that killed his trees. He calls the state agency. One thing leads to another and the remediation action is going to cost more than the loan value. The user, now the owner of the liability, tries to find someone to blame, reads the E 1527 definition of a REC for the first time, and calls the first EP:

"Did you know about the drums? How come they were not listed as a REC?"

The EP answers:

"I documented the drums in the report, the pictures are in the file!"

Both EPs documented the condition observed at the site in their reports. The only difference was that one interpreted the condition as a REC, while the other EP listed it as a finding. In a case of a spill, the EP who interpreted the drum storage as a REC and prominently noted it in a report may have a better defense. Although the scenario is based on a true story, the probability of it happening is low. The response after the accident also will have a significant impact on the impact of the release. In the illustration above the well operated facility will likely minimize the potential impacts. There are several valid reasons why some conditions such as the one described in the above scenario are not listed by many EPs as a REC. Many users consider RECs as an indication of contamination requiring a higher level of inquiry such as a Phase II. Lenders may not even consider lending money on a property that has been identified with RECs. Listing the drums as a REC would create a stigma and could be sufficient to terminate the transaction. Reports that include a number of RECs may be perceived by lenders as too risky. For this reason, some EPs interpret the definition of a REC only as those conditions indicating substantial release. The word

"substantial" is meant to represent conditions in excess of *de minimis*.

Regardless of interpretation EPs must document conditions

Regardless of the interpretation, EPs must document the environmental conditions of the subject property in the report. If they are not listed as RECs, they must be listed as findings and have an opinion provided as to their significance.

The presence of RECs on the property does not mean that the property is contaminated. RECs describe the conditions of the property with the potential of causing, or having caused, contamination of the subject property. The information enables users to develop a risk perception about the property. It is up to the *user*, not the EP, to decide what to do about the RECs. The EP's function is to provide sufficient information necessary to assist the user in reaching that decision.

Use of E 1527

Use not limited to Superfund

The use of E 1527 is not limited to Superfund issues. It is designed to provide the user with reliable environmental information. This enables it to be used by a wide range of users for varying purposes, even if there is no concern that the site may be a future Superfund site. For example, many lenders use the E 1527 on multi-family residential developments. County and state governments and other entities involved in right-of-way acquisition often use the standard to perform site assessments of portions of properties along the right of way including residential. Historical uses of the property such as for military bases that were later converted into residential properties may constitute sufficient justification to use E 1527. Varied applications of E 1527 are recognized in Section 4 of the Standard. This section cautions that although such use is perfectly appropriate, it should not be interpreted to imply that it represents customary practice. The users are under no obligation to use E 1527 on these types of properties.

Because E 1527 is site-specific, it does not address all the business-related issues involved in a transaction. The value of subject property may be influenced by off-site environmental or other liabilities of owners or operators. The E 1527 Standard only deals with issues associated with contamination of the subject site.

Relationship to E 1528

Transaction Screen does not meet AAI

The E 1528 Standard [2] is commonly known as the *Transaction Screen*. This document was initially designed to meet all of the requirements for an ILD. The passage of the Brownfields Amendment brought into question the efficacy of the Transaction Screen since it lacked the detail of a Phase I and was designed to be performed by someone other than an EP. Transaction Screens performed prior to November 1, 2002, the date of the Brownfields Amendment, comply with all appropriate inquiries (assuming they were properly conducted). It could be argued that any performed

by an environmental professional up until November 1, 2005 comply with AAI. After the EPA AAI Rule of November 1, 2005 the Transaction Screen does not meet AAI. The final Rule was very specific in saying that ASTM E 1527 met the requirements. EPA has never indicated that the Transaction Screen met the requirements of AAI.

The Transaction Screen has been revised to remove all references to it addressing issues related to E 1527, AAI and LLPs. It has been reissued to serve as a screening document for those interested in identifying environmental issues but not desiring to comply with AAI.

Transaction Screen identifies more items as RECs than Phase I ESA

TS is often used as a preliminary information-gathering tool about properties. Using that information, the users then select candidates for Phase I. Phase II or any other investigation they may deem appropriate.

TS is also used on less expensive properties where the users feel that they cannot justify spending the money for a full Phase I. The use of TS by lenders has increased since the passage of the Lender Liability Law in 1996, which potentially limits the lenders' liability to the value of the loan.

The Principles Behind AAI

In the Brownfields Amendment, Congress specified ten criteria to be included in the regulatory standards and practices to be established by EPA. These are provided in Fig. 3.4.

The first six of these were clearly intended to reflect the ASTM E 1527 standard practice. The last four are a restatement of language found in the original CERCLA law.

The criteria are set forth in CERCLA section 101(35)(2)(B)(iii) and include:

- The results of an inquiry by an environmental professional.
- Interviews with past and present owners, operators, and occupants of the facility for the purpose of gathering information regarding the potential for contamination at the facility.
- Reviews of historical sources, such as chain of title documents, aerial photographs, building department records, and land use records, to determine previous uses and occupancies of the real property since the property was first developed.
- Searches for recorded environmental cleanup liens against the facility that are filed under federal, state, or local law.
- Reviews of federal, state, and local government records, waste disposal records, underground storage tank records, and hazardous waste handling, generation, treatment, disposal, and spill records, concerning contamination at or near the facility.
- Visual inspections of the facility and of adjoining properties.
- Specialized knowledge or experience on the part of the defendant.
- The relationship of the purchase price to the value of the property, if the property was not contaminated.
- Commonly known or reasonably ascertainable information about the property.
- The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation.

Figure 3.4 Ten criteria for AAI set forth in CERCLA.

The AAI Rule was developed by EPA to conform to the criteria listed in Fig. 3.4, and similar language can be found in the AAI Rule. Before describing the specific steps to be followed, EPA cites objectives which take the task outlined above and describe the information that is to be obtained. The specific language found in the final Rule is in Fig. 3.5.

The following observations about the above language are of interest. The first, the somewhat obscure reference to persons identified under § 312.1(b)(1), is EPA language for anyone seeking to establish one of the LLPs. In ASTM terminology we would simply call them the user. Note that when we substitute "user" the language says "... the user and the EP, must seek ...". This is a good example of two problems with both the Brownfields Amendment and the AAI Rule. They frequently use that common introduction to a statement about something that must be done. It is not very clear who is supposed to do it, the user or the EP or both.

A very similar paragraph is included in AAI to deal with grantees. The only difference is that it adds petroleum products and controlled substances after the term "hazardous substances" in paragraphs (ii), (iii), and (vii). The reason for this is not intuitively obvious. It can be traced to the fact that petroleum products are specifically exempt from CERCLA and are regulated under other environmental laws. Controlled substances are a euphemism for meth labs. Methamphetamine is not a listed CERCLA hazardous waste. Congress wanted to allow funds to be used for assessing Brownfields sites that had problems related to petroleum products or meth lab use. They could include it in the grant portion of the Brownfields Amendment, but could not incorporate it in the traditional CERCLA liability portions. AAI only requires evaluation of PP or controlled substances when associated with Brownfields Grants. They are not mentioned in the context of LLPs since they are not CERCLA issues and therefore could not lead to a Superfund liability that would be subject to an LLP defense.

(1) In performing the all appropriate inquiries, as defined in this section and provided in the standards and practices set forth this subpart, the persons identified under § 312.1(b)(1) and the environmental professional, as defined in § 312.10, must seek to identify through the conduct of the standards and practices set forth in this subpart, the following types of information about the subject property:
(i) Current and past property uses and occupancies;
(ii) Current and past uses of hazardous substances;
(iii) Waste management and disposal activities that could have caused releases or threatened releases of hazardous substances;
(iv) Current and past corrective actions and response activities undertaken to address past and on-going releases of hazardous substances;
(v) Engineering controls; (vi) Institutional controls; and
(vii) Properties adjoining or located nearby the subject property that have environmental conditions that could have resulted in conditions indicative of releases or threatened releases of hazardous substances to the subject property.

Figure 3.5 Objectives of AAI from AAI final rule.

The Principles Behind E 1527

When performing Phase I, the environmental professional can always look deeper or gather some more information. It is often a difficult task to determine where to draw the line, which tasks should be included or how much information should be gathered. E 1527 recognizes the validity of these issues and provides the environmental professional with some guidance. The guidance is based on some of the fundamental principles of the E 1527 Standard.

Does not eliminate risk No new information Time, cost and process constraints

Performing Phase I ESA, or any other ESA for that matter, does not eliminate uncertainty and, at best, can only reduce it to an acceptable level for the user. There are no guarantees!

The Phase I ESA process gathers only existing information; it does not create it. EPs are not doing any testing or engaging in any activity that generates new information. The EPs can be looked upon as environmental information and knowledge brokers. Some describe the process as a paper chase.

The process is not an exhaustive search and generally has to be accomplished within specified time limits. These are usually dictated by users' needs. Time constraints are real, limit the ability to gather certain information, and should be noted as limitations to the ESA.

Level of inquiry varies Snapshot of the property

Phase I is a snapshot of the property at a specific point in time. This is an important distinction from an audit, which looks at the continuing activities associated with the property. Consequently, if the environmental assessment is evaluated at a later date by other parties, the evaluators need to take a step back in time, considering the level of knowledge and state of the art at the point in time when the Phase I was conducted. Once the environmental professional leaves the property, the conditions can change immediately. The property may become contaminated by a truck that pulls onto the subject property an hour after the assessment and dumps 4000 gallons of oil contaminated with polychlorinated biphenyls (PCBs). Similarly, what constitutes a REC is a moving target that changes with time. Spraying used motor oil on roads to reduce dust was acceptable practice in the past and was considered as having a *de minimis* environmental impact on the property. Today, this practice would constitute a REC, and the impacts on the subject property can be far from *de minimis*. E 1527 recognizes the constantly changing nature of the industry as shown in the excerpt from Section 4.5.4 of the Standard in Fig. 3.6.

The Shelf Life of Reports

Good for 180 days

Considering the nature of potentially rapid change in the conditions of the subject property, the shelf life of a report could be perceived as extremely short. The Phase I ESA report could literally be considered obsolete by the time it is written. Recognizing the problem, the Standard establishes some ground rules for the

continued viability of the Phase I ESAs. Section 4.6 in E 1527 lists specific rules. The AAI resulted in some changes to the shelf life of the reports from the previous editions of the Phase I Standard. The two principal changes included a more specific definition of the dates involved and a statement that the reports expire after one year. These changes are incorporated in the 2005 version of the ASTM Standard.

Note that AAI also makes specific reference to the time as being measured from the time the work was done. This is different from the date on the report. For jobs done with a one week turnaround it may be of little practical impact but it can be significant for a Phase I EHSA that had a 30 or 60 day turnaround. For example, if the site visit was done 30 days before the report date, the effective useful life of the report is not 180 days but 150 days. For this reason it is important to document when the various Phase I ESA activities occurred.

The dates are specific to the actual date of acquisition of the property, or for transactions not involving acquisitions the date of the intended transaction. This becomes important in the context of commercial real estate because it is not uncommon to have multiple parties involved and find that a closing is held up until some final detail is completed. In some situations the issues related to the Phase I may all be resolved to everyone's satisfaction, but the transfer can't occur until some other loan document is obtained. If the closing slips past the 180 day or one year time deadlines, the Phase I may have to be revisited to maintain AAI compliance.

Broadly speaking, Phase I ESAs are considered valid for six months (180 days). After this time, the use of the ESA is subject to specific rules. Perhaps the most problematic of all is the rule requiring the party relying on past Phase I ESA to determine whether it met or exceeded the requirements of E 1527. Now suddenly the EPs' or users' function changes from an information user to a judge of other EPs' work product. From a practical standpoint, this function could be a difficult and potentially litigation-prone task. The EPs or users relying on previous Phase I ESAs need to be very familiar with this section of the Standard and use appropriate professional judgment.

Subsequent environmental site assessments should not be considered valid standards to judge the appropriateness of any prior assessment based on hindsight, new information, use of developing technology or analytical techniques.

Figure 3.6 E 1527 language from section 4.5.4.

After 180 days the Phase I report (that met or exceeded the requirements of ASTM E 1527) can be updated. The requirements for the update are listed in Fig. 3.7.

For reports older than one year the report cannot just be updated but must be redone. The Standard goes on to say that it is possible to use information from a prior report if it was generated using procedures meeting or exceeding the requirements of ASTM E 1527. It also says that the information cannot be used without current investigation of conditions likely to affect RECs.

This begs the question—Is there any difference? As a practical matter, not much. In both cases, the principal part of the report that is salvageable is the historic review and the general site description. Just about everything else has to be redone. In the 180 day update an EP could attach a document which was titled updated and discusses the information gathered in the update. After the one year expiration the EP would do essentially the same work and provide a new report that incorporated the usable information from the expired report.

For liability reasons many consultants are reluctant to use any information that they did not specifically obtain. This is especially true if they are not familiar with the firm or person who did the prior work. In using an old report without independent verification of the data you are assuming that whoever did the work performed it in a competent manner.

There is one other interesting change in the wording related to AAI and the use of the report. AAI and ASTM both acknowledge that other people besides the intended user may end up using the report. The Standard goes on to say that any subsequent users other than one for whom the report was prepared must satisfy the users' responsibilities as described in various sections of the Standard and reflected in Appendix X-3. This is discussed in more detail in Chapter 6.

(i) *interviews* with owners, *operators*, and *occupants*;
(ii) searches for recorded environmental cleanup liens;
(iii) reviews of federal, tribal, state, and local government records;
(iv) visual inspections of the property and of *adjoining properties*; and
(v) the declaration by the *environmental professional* responsible for the assessment or update.

Figure 3.7 Requirements for updates after 180 days (source ASTM E 1527-05).

Rules of Engagement

Contracts define the rules of engagement

It is up to the environmental professional and the user to work out the contractual and legal obligations associated with Phase I ESAs. As we discussed in this chapter, Section 4 of E 1527 provides some guidance with respect to the significance and use of the Standard, but the contractual issues are specifically excluded and have to be worked out by the EP and the user. The rules of engagement may vary depending on the relationship of the players, user needs, EPs' operational protocols, business judgment, and other issues.

Whenever the applications of the Standard go beyond the scope of the Standard, the users and EPs must pay particular attention to contracting to ensure that the additional items and responsibilities are sufficiently addressed in the contract.

Summary

In this chapter, we learned about varied applications of the Standard, some of which extend beyond the scope of CERCLA. We discussed how the user needs drive the application of the Standard. We reviewed the relationship of the Transaction Screen, AAI, and Phase I ESAs. We talked about the principles driving the application of the Phase I Standard, noting the limited shelf life of the reports. We learned that contractual issues are not included in the scope of E 1527.

References

1. E 1527 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM 1997

2. E 1528 *Standard Practice for Environmental Site Assessments: Transaction Screen Process*, ASTM 1996

PART ONE

Chapter 4

Responsibilities

In this chapter, we will discuss issues related to:

- **Responsibilities Under AAI**
- **User responsibilities ASTM**
- **EP responsibilities**

Responsibilities under AAI

The Brownfields Amendment and AAI have significant implications for both the users and the EPs. The ten criteria included in the Brownfields Amendment provided guidance that EPA has to consider in developing the rules for AAI. Those criteria speak in terms of the user and the EP. It makes no specific distinction between the user and the EP. AAI does not actually make use of the term user. It uses a much more involved definition to account for various parties involved in transactions, including grantees. The language from AAI on applicability may be found in Fig. 4.1. In order to simplify the concept, we will use the ASTM E 1527 terminology for user.

The Brownfields Amendment is not very specific about the roles of the user and the EP. The AAI Rule is somewhat more specific and details specific tasks required of the EP. The ASTM Standard provides more clarification of the roles of the parties involved.

One area of concern is the users' responsibility which can be divided into two general subjects, conducting AAI and continuing obligation requirements. This is a major change in the user responsibilities from pre-Brownfields Amendment practices.

The requirements of this part are applicable to:
(1) Persons seeking to establish:
(i) The innocent landowner defense pursuant to CERCLA sections 101(35) and 107(b)(3);
(ii) The bona fide prospective purchaser liability protection pursuant to CERCLA sections 101(40) and 107(r);
(iii) The contiguous property owner liability protection pursuant to CERCLA section 107(q); and
(2) persons conducting site characterization and assessments with the use of a grant awarded under CERCLA section 104(k)(2)(B).

Figure 4.1 AAI definition of "User" (from AAI Rule).

Many of the continuing obligations are related to Activity and Use Limitations (AULs). A new Section 5 was added to the ASTM Standard to discuss AULs. Both the user and the EP have responsibilities to identify AULs in the Phase I process. These could be intuitional controls that take the form of, for example, land use restrictions, or engineering controls that may include a physical cap or an operating remediation system. The user must identify and comply with these AULs as part of the LLP defenses. Contained within the preamble to the rule, EPA states that failure to discover the AUL in the Phase I process does not relieve the user from the responsibility to comply.

Unfortunately there is currently no Standard accepted language to describe AULs. There is no consistent place to find them. They are sometimes included in land title records. Some state environmental regulatory agencies maintain registries of AULs. In some cases, they are found in judicial records. For older actions, project case files may be the only place they are documented. Over time, it is likely that more robust systems will evolve for tracking AULs. Until that time, finding them will be highly site specific.

Another related term used in AAI and ASTM regarding encumbrances on the property is the environmental lien. This is different from a traditional AUL in that it would typically be a financial encumbrance as opposed to some specific land use restriction or physical action at the site. This concern derives from the provision of the BFPP whereby the government may recover costs they incur in cleaning up a site when the land sells. The actual amount of recovery is a complicated determination based on a number of factors including cost of remediation, value of the land, and the increased value associated with the clean up. Parallel state programs can also place liens on a property. Typically those liens would be payable at the time of sale.

There are very few of these liens in existence, but they will increase with time and the continued emphasis on Brownfields rede-

engineering controls (EC)—physical modifications to a site or facility (for example, capping, slurry walls, or point of use water treatment) to reduce or eliminate the potential for exposure to *hazardous substances* or petroleum products in the soil or ground water on the *property*.

institutional controls (IC) —a legal or administrative restriction (for example, "deed restrictions," restrictive covenants, easements, or zoning) on the use of, or access to, a site or facility to 1) reduce or eliminate potential exposure to *hazardous substances* or petroleum products in the soil or ground water on the *property*, or *2)* to prevent activities that could interfere with the effectiveness of a response action, in order to ensure maintenance of a condition of no significant risk to public health or the environment.

Figure 4.2 Definitions of EC and IC (from ASTM E 1527-05).

velopment. These liens are very closely associated with BFPP type projects. They would typically be found in a registry list maintained by a regulatory agency, property title searches or judicial records.

User Responsibilities ASTM

Members of the E-50 Committee, including your authors, have been teaching the Environmental Site Assessment (ESA) Standards since 1994. Students, many of them environmental professionals (EPs), are often surprised to find out about the number of responsibilities the *users* have with respect to the Phase I ESA. This is one of the advantages of creating a Standard with the consensus process. Because it is primarily a give and take process of reaching consensus between users and producers, both end up having responsibilities. These user responsibilities have been expanded by AAI.

Users must provide EPs with information

Users' responsibilities are spelled out in Section 6 of E 1527 [1]. This Section was in existence prior to AAI. Revision of this section was necessary because the Brownfields Amendment and AAI place specific responsibilities on the user. Appendix X-3 of the E 1527-05 Standard is a questionnaire prepared to document the user activities. ASTM says the questionnaire is mandatory for the user to provide to the EP. The AAI final rule indicated that the user should provide the information but stopped short of requiring it. This was largely in response to comments received on the draft rule where users indicated that they desired confidentiality. EPA does state that if the information is not provided to the EP, then the EP is required to treat the lack of information as a data gap.

One of the issues for the EP is to determine who the user is. Typically, the user has been a single client or maybe the buyer and their bank. Part of Appendix X-3 includes a request for the client (user) to provide a list of other users of the document. If those other users wish to assert an LLP, they must also document their participation in the process. They should complete the questionnaire or at least document that they looked for the information. What responsibility the EP has, if any, to assist in this process is not clear. At a minimum, the EP should advise the client to forward the questionnaire to other users.

environmental lien—a charge, security, or encumbrance upon title to a property to secure the payment of a cost, damage, debt, obligation, or duty arising out of response actions, cleanup, or other remediation of *hazardous substances* or *petroleum products* upon a property, including (but not limited to) liens imposed pursuant to CERCLA 42 U.S.C. §§9607(1) & 9607(r) and similar state or local laws.

Figure 4.3 Definition of Environmental Lien (from ASTM E 1527-05).

The Appendix X-3 consists of two parts. There are six questions that specifically address the users' responsibilities outlined in AAI. The balance of the questionnaire is indicating the type of information that a user typically possesses that should be provided to the EP. A number of these items are typically covered in related documents such as the contract, proposal, or scope of work.

Helpful documents are not included in Appendix X-3

The ASTM Standard also has other site specific information detailed in Section 10 which is related to helpful documents. These documents are not included in Appendix X-3. They are to be requested prior to the site visit. The Standard requires that the property owner, key site manager, and user be asked if any of the documents can be provided.

Some of the responsibilities outlined in the Standard are not well understood by the users. Not having read the Standard, many users are not even aware of them. Sometimes the EPs do not communicate the responsibilities to the users, or users expect the EPs to take on these responsibilities. When the EP performs certain user responsibilities, the EP's efforts and costs associated with Phase I ESAs can increase significantly.

Users must check for environmental liens and AULs

The users are required by the Standard to check title records, and judicial records for environmental liens. They are also required to check for AULs. The Standard is very specific in indicating that the EP is not responsible for this activity.

Users must disclose specialized knowledge

If the user has any specialized knowledge or experience that would assist the EP in identifying RECs on subject property, they must report it to the EP. Additionally the Standard requires the user to provide any helpful documents. Both of these are to be provided prior to the site reconnaissance. This responsibility is often muddled in the process because of multiple user issues. Generally, the lender or buyer hires the EP to perform the Phase I ESA. Lenders are not in business to lose money and pass the cost through to the buyer. As we discussed in Chapter 1, both the lender and the buyer are considered users by the E 1527 Standard. The sophisticated lenders are sometimes aware of the requirement of the Standard, but generally possess very little specialized knowledge about potential RECs on the property. The buyers generally have more knowledge about the property, but not nearly as much

Unless added by a change in the scope of work to be performed by the *environmental professional*, this practice does not impose on the *environmental professional* the responsibility to undertake a review of *recorded land title records* and judicial records for *environmental liens* or *activity and use limitations* title records. The *user* should either 1) engage a title company or title professional to undertake a review of *reasonably ascertainable recorded land title records* and lien records for *environmental liens* or *activity and use limitations* currently recorded against or relating to the *property*, or 2) negotiate such an engagement of a title company or title professional as an addition to the scope of work to be performed by the *environmental professional*.

Figure 4.4 Responsibility for land title records (from ASTM E 1527-05).

as the current owner and occupants. The buyer is seldom aware of disclosure requirements of E 1527. The owner and occupants are rarely aware of any disclosure requirements. However, it is the buyer who has the most leverage in trying to obtain cooperation from a prospective seller. Although it is not specifically required by the Standard, it is in the best interests of the EP to notify the users of their responsibilities with respect to the Standard. Figure 4.1 shows one method used by the EPs to put users on notice by sending a written request for such information. The request should go to all the users, not just the lender. It is important for the EPs to identify all the users when making these information requests.

The owner of the property generally has most of the knowledge, but may not be the *user* of the report. Unless the owner is also the user, he is under no obligation to provide any information and under certain circumstances may be attempting to conceal or pretend ignorance with respect to RECs. As we will discuss in Chapter 8, which addresses the interview process, the best manner in which the EPs can inquire about owners' knowledge and experience is through the interview process. A form, similar in content to Fig. 4.1, sent to the owner before an interview, can also be used as a tool to put the owners or site managers on notice about some of the information that the EPs are seeking.

Note that this discussion about helpful documents is not specifically related to Appendix X-3, which is the documentation required by users to conform with AAI. Appendix X-3 includes a question about specialized knowledge. Specialized knowledge on the part of the user and helpful documents from the user, owner and occupants are to be requested and provided prior to the site visit.

EP Responsibilities

Up until the 2005 version of the Standard the EP definition was intentionally vague and tied to sufficient training and experience to develop opinions regarding RECs. It contained no specific requirements for training, education or experience.

This definition was one of the most controversial issues of the EPA AAI Rule making process. It was the subject of extensive comment after the draft rule was published. The final definition used in AAI is incorporated directly into the ASTM Standard by reference in the Definition Section and inclusion as Appendix X-2 of the Standard.

There was a significant change to the final category of the EP definition based on the extensive comments EPA received on the draft rule. The draft rule required the same ten years experience but was constructed as a grandfather clause and only applied to those with ten years experience at the time the AAI Rule was made final. It also required a baccalaureate degree. The final rule was changed and simply requires ten years of relevant experience.

PHASE I
ENVIRONMENTAL SITE ASSESSMENT
USER-FURNISHED INFORMATION

The following is a list of documents and information which could be useful to Avanti Environmental, Inc in preparing your Phase I Environmental Site Assessment. Check the appropriate boxes below, sign, and return this along with copies of any reasonably available documents or information. This will be attached to and made part of your completed Phase I Report.

Yes	No		
☐	☐	1.	Environmental site assessment reports
☐	☐	2.	Environmental compliance audit reports
☐	☐	3.	Environmental permits (i.e. solid waste disposal permits, hazardous waste disposal permits, wastewater permits, NPDES permits, underground injection permits)
☐	☐	4.	Registrations for underground and above-ground storage tanks
		5.	Registrations for underground injection systems
☐	☐	6.	Material safety data sheets
☐	☐	7.	Community right-to-know plan
☐	☐	8.	Safety plans: preparedness and prevention plans; spill prevention, countermeasure, and control plans; etc.
☐	☐	9.	Reports regarding hydrogeologic conditions on the property or surrounding area
☐	☐	10.	Notices or other correspondence from any government agency relating to past or existing environmental liens encumbering the property
☐	☐	11.	Geotechnical studies
		12.	Risk Assessments
		13.	Recorded AULs
☐	☐	14.	Information concerning any pending, threatened, or past litigation or administrative proceedings relevant to hazardous substances or petroleum products
☐	☐	15.	Notices from any governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products

The following are examples of information not specifically included in the helpful documents requirements as an example of the types of additional information that some EPs ask for as part of the process.

☐	☐	Disclosure of sumps, pits, drainage systems-existence and location
☐	☐	Building plans (architectural, utility, structural)
☐	☐	Description of current site operations, including layout drawings or sketches
☐	☐	Title report/chain of title
☐	☐	Tax assessor records (previous owner and occupants)
☐	☐	Purchase price analysis (if lower than comparable)
☐	☐	Current and historical photographs of site

I have reviewed the above list and have provided copies of documents and information that exists that could be obtained within reasonable time and cost constraints.

Signature _____ Date _____

Figure 4.5 Request form for information.

One of the key concepts to all of the categories is the concept of relevant experience. This is also defined in AAI and is included in the ASTM Appendix X-2.

There is one more important distinction in the AAI Rule regarding the role of the EP. AAI introduces the concept of responsible charge. This means the EP need not conduct the actual work but it must be done under their active supervision. This is not a responsibility to be taken lightly, and there are generally accepted principles for what constitutes responsible charge.

Environmental Professional means:

(1) a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of releases or threatened releases (see §312.1(c)) on, at, in, or to a property, sufficient to meet the objectives and performance factors in §312.20(e) and (f).

(2) Such a person must:

(i) Hold a current Professional Engineer's or Professional Geologist's license or registration from a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) and have the equivalent of three (3) years of full-time relevant experience; or

(ii) Be licensed or certified by the federal government, a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) to perform environmental inquiries as defined in §312.21 and have the equivalent of three (3) years of full-time relevant experience; or

(iii) Have a Baccalaureate or higher degree from an accredited institution of higher education in a discipline of engineering or science and the equivalent of five (5) years of full-time relevant experience; or

(iv) Have the equivalent of ten (10) years of full-time relevant experience.

(3) An environmental professional should remain current in his or her field through participation in continuing education or other activities.

(4) The definition of environmental professional provided above does not preempt state professional licensing or registration requirements such as those for a professional geologist, engineer, or site remediation professional. Before commencing work, a person should determine the applicability of state professional licensing or registration laws to the activities to be undertaken as part of the inquiry identified in §312.21(b).

(5) A person who does not qualify as an environmental professional under the foregoing definition may assist in the conduct of all appropriate inquiries in accordance with this part if such person is under the supervision or responsible charge of a person meeting the definition of an environmental professional provided above when conducting such activities.

Figure 4.6 Definition of EP (from AAI Final Rule).

Attributes of Responsible Charge

- Supervise the individual performing the work
- Obtain or set the project parameters or criteria
- Ability to require changes to the work and dictate the manner and methods by which the work is performed or the scope of involvement by the individual, even over the individual's objections without negative impact on your job status, advancement or compensation
- Involved from start to finish as the individual performs the work
- Procedures in place for QC and authority over the work that assure the environmental professional is in control of the individual(s) performing the work
- Sufficient time spent with the individual during the course of the performance of the work sufficient to be familiar with the details of the work
- Familiar with the capabilities and methods of the individual performing the work
- Train the individual
- In close proximity or have readily accessible contact with the individual either by physical location or by frequent, clear and full communication in verbal and visual form of the work being performed
- Competent by training and experience in the field which is represented by the work in question

ASTM has always required that the EP conduct the site visit and the interviews. ASTM committee members drafting the 2005 version felt it was important to require some minimum standard for those conducting the site visit and the interviews. The ASTM Standard dropped the requirement that the EP perform the site visit and interviews, but required qualifications similar to those previously used to define an EP as shown in Fig. 4.8. This is a situation where the ASTM Standard is more stringent, or at least more specific, than AAI.

Relevant experience, as used in the definition of environmental professional in this section, means: participation in the performance of all appropriate inquiries investigations, environmental site assessments, or other site investigations that may include environmental analyses, investigations, and remediation which involve the understanding of surface and subsurface environmental conditions and the processes used to evaluate these conditions and for which professional judgment was used to develop opinions regarding conditions indicative of releases or threatened releases (see §312.1(c)) to the subject property.

Figure 4.7 Definition of relevant experience (from AAI Final Rule).

The *interviews* and *site reconnaissance* shall be performed by a person possessing sufficient training and experience necessary to conduct the *site reconnaissance* and *interviews* in accordance with this practice, and having the ability to identify issues relevant to *recognized environmental conditions* in connection with the *property.* At a minimum, the *environmental professional* must be involved in planning the *site reconnaissance* and *interviews.*

Figure 4.8 ASTM requirements for interviews and site resonnaissance.

E 1527 does not include a specific section listing the EPs' responsibilities. The responsibilities are specified throughout the various sections of E 1527. The EP conducts the Phase I Environmental Site Assessment in accordance with the contractual agreement with the user. If the contractual agreement specifies E 1527, it is the EP's responsibility to perform the Phase I in accordance with the Standard. As such, the Phase I has four main components:

1. Records Review,
2. Site Reconnaissance,
3. Interviews and
4. the Report

Conceptually, as depicted in Fig. 4.9, the Phase I ESA process can be viewed as a jigsaw puzzle. The first three components provide many pieces of the puzzle. Using the report, the EP arranges all the pieces in the best possible fit. The opinion section of the report provides an interpretation of the missing pieces.

Existing information only

E 1527 does not require any collection of samples. The EP is not required to perform any sampling or engage in any activities which would generate new information. The Phase I ESA consists of physical observation using sight and smell and the interpretation of existing information.

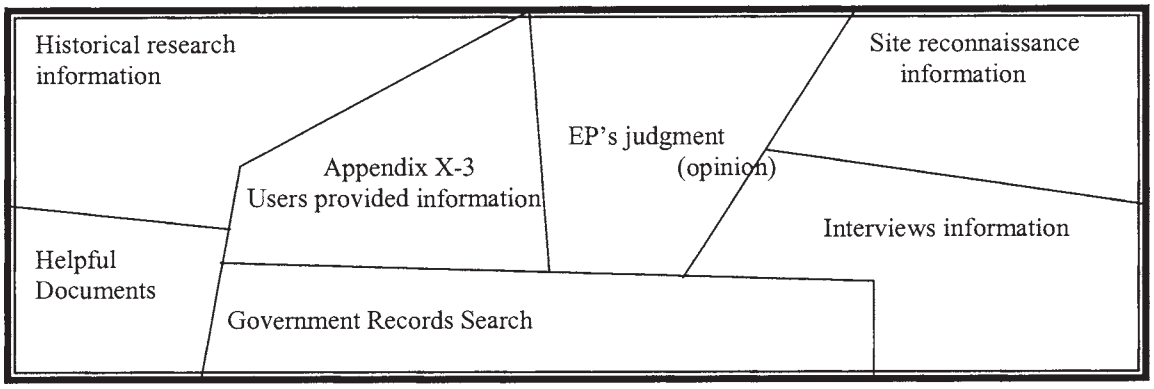

Figure 4.9 Components of Phase I process puzzle.

Supervise report writing

The EP is responsible for overseeing the writing of the report as well as a review and interpretation of all of the information that forms the basis of the report. There may be numerous parties associated with various portions of the ESA, and the process may involve numerous EPs. It is important to identify the sources and EPs or other parties responsible for particular portions of the process.

Notify user of discrepancies

The Phase I ESA process involves numerous information gathering components. The bulk of the information comes from independent businesses, governmental agencies, and public libraries. Although the EP can rely on the information provided without independently verifying its accuracy, it is important to consider it together with other findings. If other facts indicate that some source information is obviously incorrect, the EP has the responsibility to identify such discrepancies to the user. For example, if during the site reconnaissance the EP uncovers wrong address information associated with adjacent properties and the information indicates potential RECs with respect to the subject property, the user should be notified.

Summary

In this chapter, we reviewed some of the responsibilities the users have in providing applicable information to the environmental professional. We reviewed the definition of the environmental professional and also considered some of the general responsibilities of the EP. We identified that the primary responsibility of the EP is to conduct the Phase I ESA. This responsibility involves thorough knowledge and appropriate application of the E 1527 Standard.P

References

1. E 1527 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM 1997

2. Standards and Practices for All Appropriate Inquiry, Federal Register Vol 70, No 210, Thursday, November 1, 2005/Rules and Regulations.

PART ONE

Chapter 5

Records Review

In this chapter, we will discuss issues related to required elements of E 1527 record research. We will review:

- **Principles behind E 1527 records information**
- **Obtaining the records**
- **Mandatory and optional state and federal record information**
- **Mandatory and optional physical setting records information**
- **Historical research**

Records are foundation of Phase I ESA

Introduction

One of the most important required elements of the Phase I Environmental Aite Assessments (Phase I ESAs) involves obtaining and reviewing records. Phase I ESAs do not involve any sampling. All of the other assessment activities, such as the interviews and the site reconnaissance, rely heavily on information uncovered in the records review portion of the Phase I ESA. The records review thus forms the foundation of the Phase I ESA.

The objective of the Phase I ESA is to identify recognized environmental conditions (RECs) associated with the subject property. This objective in turn drives the purpose for the record research. Through records review the environmental professionals (EPs) are attempting to identify any records that will help them identify any RECs in connection with the subject property.

Principles behind E 1527 Records Information

The records applicable to the requirements of E 1527 [1] must be *reasonably ascertainable*. E 1527 defines this term, and we will briefly discuss the underlying principles behind it. Many records associated with the subject property fall into the reasonably ascertainable category, but EPs are only seeking records useful in identifying RECs. Combining these two principles substantially reduces the number of the records that need to be reviewed in the Phase I ESA process.

Reasonably Ascertainable

Reasonably ascertainable if public and reviewable

Reasonably ascertainable records consist of information that is *publicly available* obtainable within reasonable cost and time and *practically reviewable*. E 1527 defines each principle further.

Publicly available information consists of any information that can be obtained by anyone who asks for it. For example, most of the government information related to environmental regulations is considered publicly available. Internal corporate documents associated with the manner in which the neighboring property processes wastes would not be considered publicly available. If, however, the corporation is listed as a waste generator, then the information that is reported to the government is considered publicly available.

Reasonable cost and time

Information obtainable within a reasonable time consists of information that can be obtained from the source within 20 calendar days from the time of request. Many Phase I ESAs are conducted in less time than 20 days. If the necessary information cannot be obtained in the allotted time for the ESA, the EP must determine whether the information was not reasonably ascertainable or the research was limited by time constraints established by the user. Figure 5.1 shows the decision making approach. The example assumes that the Phase I ESA must be completed in ten days. If the information was ascertainable in 20 days but not in ten, then the failure to review those records would be listed as a limitation to the Phase I ESA. This limitation may also be a significant *data gap* if the lack of information is determined to impact the EP's decision regarding a REC.

E 1527 defines reasonable cost as the sources' nominal cost of retrieving and duplicating. Some records may be available for the property, but the cost of retrieval may be high. In cases where the retrieval costs are excessive, the information is not considered reasonably ascertainable.

The Standard also defines practically reviewable information. This definition addresses the form in which the information is available for review. The information must be relevant to the environmental aspects of the property and should not require any extraordinary analysis of the data. If, for example, the information is only identified by zip code, it would require too much effort to crosscheck all the listings against the address information. It is therefore considered not practically reviewable.

Obtaining the Records

Non-EP may gather records

The EPs must make a reasonable effort to obtain the records. Even if the records are not *reasonably ascertainable*, the EPs must then attempt to obtain the required information through the other activities associated with the assessment such as interviews with the owners, occupants, and users.

EPs can engage a non-environmental professional in the activity of gathering the records or order the record search from a commercial service. Because it is their business, most commercial service companies that specialize in providing environmental information to consultants are far better equipped to generate the information than the EPs. With fast turnaround times, user friendly format, competitive price and timely updating in conformance with the requirements of E 1527, the reports streamline the Phase I ESA records review process.

The EPs can rely on the information obtained without being obligated to check it for accuracy and completeness. Only in cases where other activities of the Phase I ESA uncover mistakes or insufficiencies are the EPs obligated to make an effort to consider the impact of those discrepancies in light of the environmental conditions of the subject property.

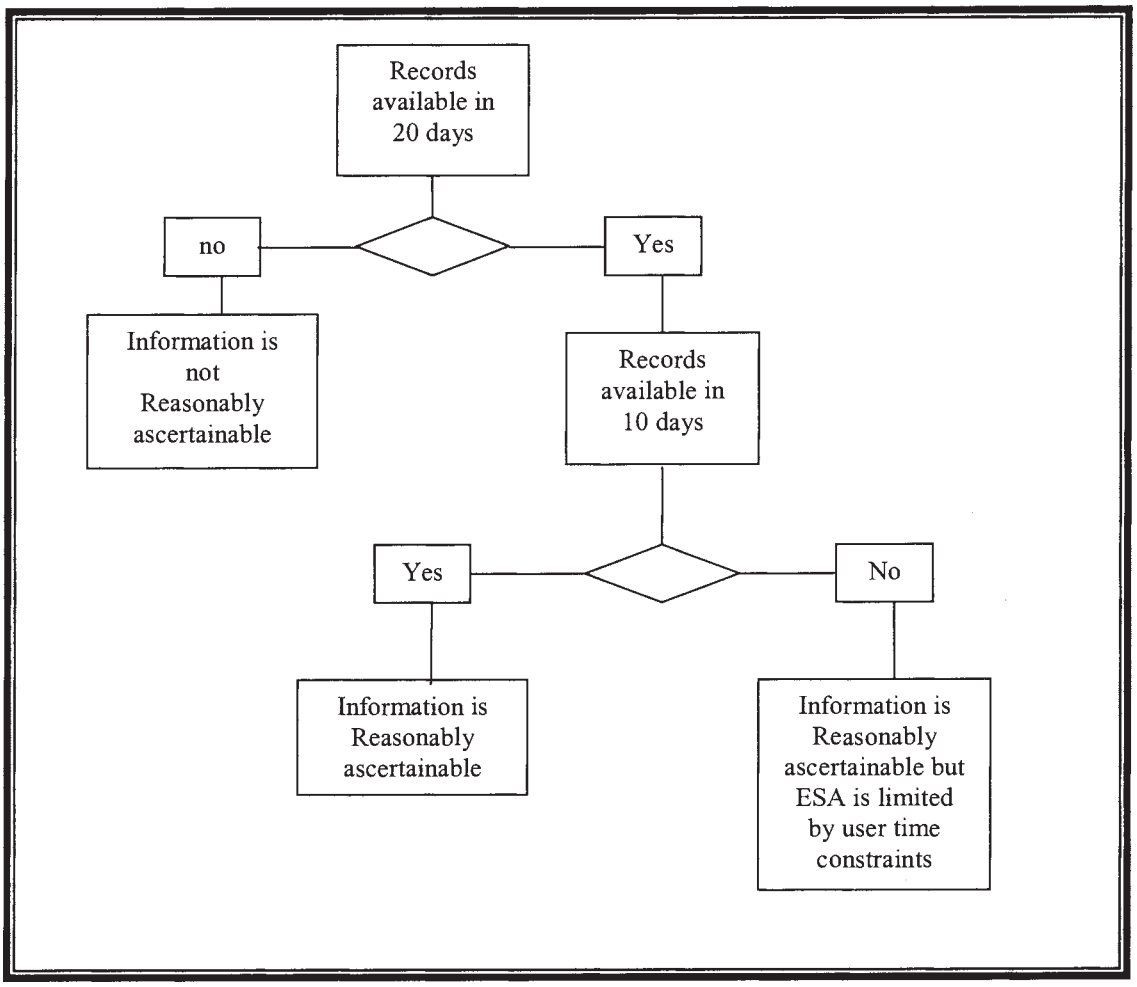

Figure 5.1 Decision process for reasonably ascertainable information.

Document all sources

E 1527 requires the EP to document each source that was used, even if it did not reveal any findings. The sources must be sufficiently documented, including name, date of request, and the date the information was last updated by the original source. The EPs generally satisfy this requirement by including a complete copy of the record in the appendices. If the EPs only provide a reproduced portion of an aerial photograph or a map in the report, then they must take additional steps to document relevant source information such as name, date, and scale separately.

Mandatory and Optional State and Federal Record Information

E 1527 requires several standard environmental records sources to be included in the research and specifies minimum search distances from the property boundary. These requirements are shown in Fig. 5.2. The figure also includes the required minimum search distances. Minimum search distances are measured from the property boundary. Most commercial sources provide radius searches with the property center forming the central point of the searches. Figure 5.3 depicts a typical map generated through a radius search. The EPs should pay particular attention to the minimum search distance requirement. Larger or irregularly shaped properties may require the EP to request an extended radius search in order to meet the E 1527 minimum search distance requirement.

Standard Environmental Record Sources (where available)	*Approximate Minimum Search Distance* miles (kilometres)
Federal *NPL* site list	1.0 (1.6)
Federal Delisted *NPL* site list	0.5 (0.8)
Federal CERCLIS list	0.5 (0.8)
Federal CERCLIS NFRAP site list	0.5 (0.8)
Federal RCRA CORRACTS facilities list	1.0 (1.6)
Federal RCRA non-CORRACTS TSD facilities list	0.5 (0.8)
Federal *RCRA generators list*	*property* and *adjoining properties*
Federal institutional control/engineering control registries	*property* only
Federal *ERNS list*	*property* only
State and tribal lists of *hazardous waste sites* identified for investigation or remediation:	
State- and tribal-equivalent *NPL*	1.0 (1.6)
State- and tribal-equivalent CERCLIS	0.5 (0.8)
State and tribal *landfill* and/or *solid waste disposal site* lists	0.5 (0.8)
State and tribal leaking storage tank lists	0.5 (0.8)
State and tribal registered storage tank lists	*property* and *adjoining properties*
State and tribal institutional control/ engineering control registries	*property* only
State and tribal voluntary cleanup sites	0.5 (0.8)
State and tribal Brownfield sites	0.5 (0.8)

Figure 5.2 Mandatory federal and state sources (adapted from E 1527).

The environmental professional may also supplement the mandatory information by checking a number of other sources. Additional sources are usually included in the Phase I ESA if the EP has found the source useful in the past or if it is a part of local customary practice. Figure 5.4 lists several examples of the types of local records and local sources of information.

Commercial sources of environmental information can also provide information that may be useful for the environmental professional in researching the property. The services usually provide

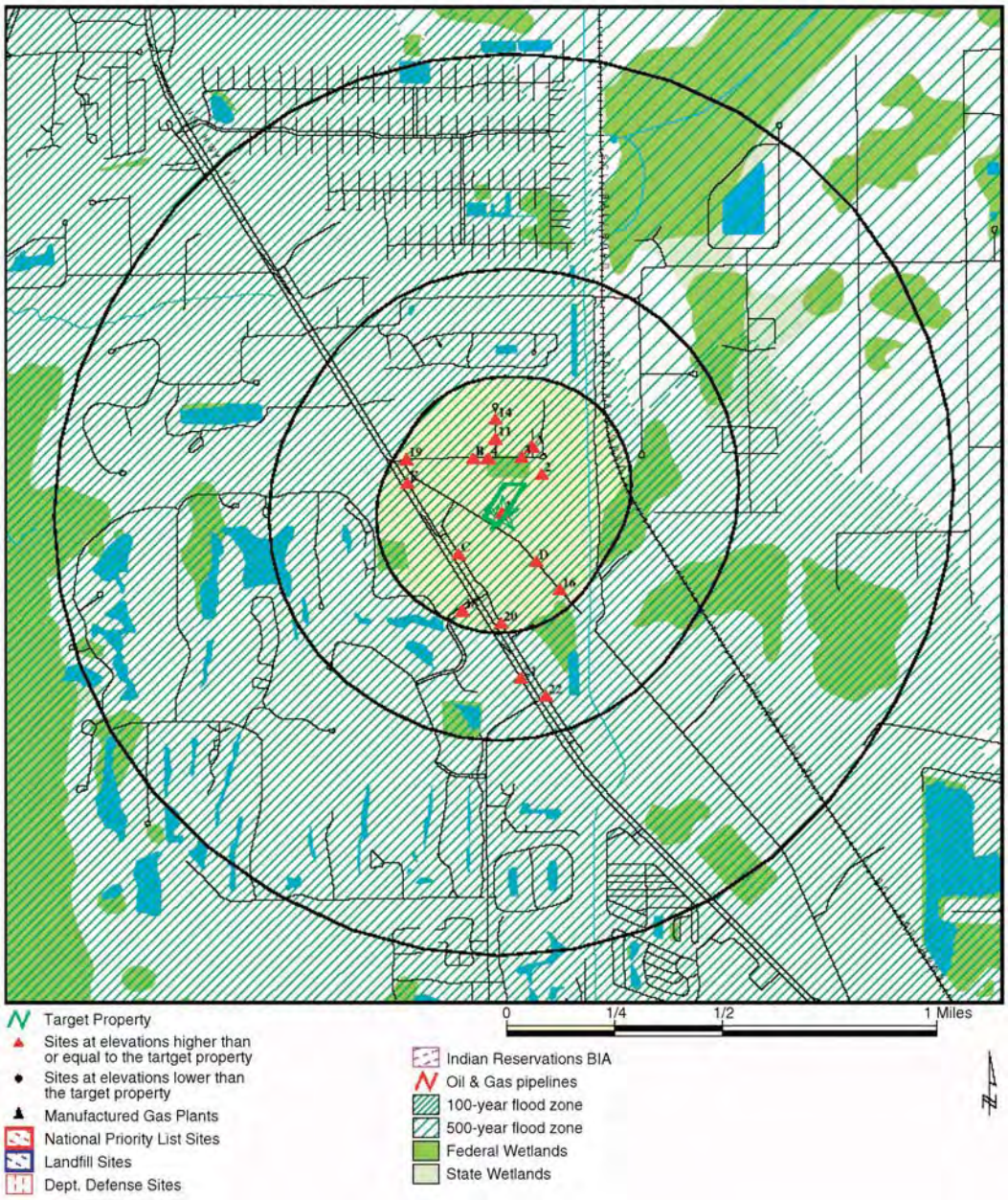

Figure 5.3 Example of records research radius map.

information about the information sources searched including agency release dates. Figure 5.5 is a reproduced portion of commercial records research which has been extended-one half mile and includes both mandatory and non-mandatory sources of information. The figure shows the source identity, release dates and brief descriptions of the source to enable users to better understand the information in the report. The types of available information will vary from state to state, and some of the information may be only available on the local level.

As can be seen in Fig. 5.5, many commercial search services offer additional non mandatory databases as part of their standard Phase I package. Some also offer non-database information such as maps, physical setting information, or historical data. These services are normally provided at an extra cost.

If the EP elects to receive additional non-mandatory databases, they need to be reviewed. Adding a significant number of additional databases can greatly increase the review time required to evaluate the information. A good rule of thumb is that if the EP is not going to look at it, then they should not ask for it.

One principle to keep in mind is that the purpose of the records review is to obtain information on RECs. Information that provides new insight to the property is useful. Additional information that simply confirms what is already known is of limited value. For example, if the EP has three sources that indicate that there was a UST on the site, then an additional source that confirms that there was a UST on site is of little value.

Sometimes the non-mandatory information includes a non-scope item. EPs should be cautious about obtaining and including data which addresses non-scope items such as radon or wetlands in their

Types of local records

- *Lists of Landfill/Solid Waste Disposal Sites*
- *Lists of Hazardous Waste/Contaminated Sites*
- *Lists of Registered Underground Storage Tanks*
- *Records of Emergency Release Reports*
- *Records of Contaminated Public Wells*

Local sources

- *Department of Health/Environmental Division*
- *Fire Department*
- *Planning Department*
- *Building/Permit/Inspection Department*
- *Pollution Control Agency*
- *Water Quality Agency*
- *Utility Companies*

Figure 5.4 Local record types and sources (adapted from E 1527).

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/14/05	Source: EPA
Date Data Arrived at EDR: 11/02/05	Telephone: N/A
Date Made Active in Reports: 12/07/05	Last EDR Contact: 01/31/06
Number of Days to Update: 35	Next Scheduled EDR Contact: 05/01/06
	Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1 Telephone 617-918-1143	EPA Region 6 Telephone: 214-655-6659
EPA Region 3 Telephone 215-814-5418	EPA Region 8 Telephone: 303-312-6774
EPA Region 4 Telephone 404-562-8033	

Proposed NPL: Proposed National Priority List Sites

Date of Government Version: 10/14/05	Source: EPA
Date Data Arrived at EDR: 11/02/05	Telephone: N/A
Date Made Active in Reports: 12/07/05	Last EDR Contact: 01/31/06
Number of Days to Update: 35	Next Scheduled EDR Contact: 05/01/06
	Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/14/05	Source: EPA
Date Data Arrived at EDR: 11/02/05	Telephone: N/A
Date Made Active in Reports: 12/07/05	Last EDR Contact: 01/31/06
Number of Days to Update: 35	Next Scheduled EDR Contact: 05/01/06
	Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Figure 5.5 Example of records research source summary (provided by EDR).

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/15/91
Date Data Arrived at EDR: 02/02/94
Date Made Active in Reports: 03/30/94
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 11/21/05
Next Scheduled EDR Contact: 02/20/06
Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/24/05
Date Data Arrived at EDR: 12/21/05
Date Made Active in Reports: 01/30/06
Number of Days to Update: 40

Source: EPA
Telephone: 703-413-0223
Last EDR Contact: 12/21/05
Next Scheduled EDR Contact: 03/20/06
Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

Date of Government Version: 10/24/05
Date Data Arrived at EDR: 12/21/05
Date Made Active in Reports: 01/30/06
Number of Days to Update: 40

Source: EPA
Telephone: 703-413-0223
Last EDR Contact: 12/21/05
Next Scheduled EDR Contact: 03/20/06
Data Release Frequency: Quarterly

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 10/13/05
Date Data Arrived at EDR: 10/27/05
Date Made Active in Reports: 12/07/05
Number of Days to Update: 41

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/06/05
Next Scheduled EDR Contact: 03/06/06
Data Release Frequency: Quarterly

RCRA: Resource Conservation and Recovery Act Information

continued next page

Figure 5.5 Example of records research source summary (provided by EDR).

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/15/05	Source: EPA
Date Data Arrived at EDR: 12/28/05	Telephone: 800-424-9346
Date Made Active in Reports: 01/30/06	Last EDR Contact: 12/28/05
Number of Days to Update: 33	Next Scheduled EDR Contact: 02/27/06
	Data Release Frequency: Quarterly

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/04	Source: National Response Center, United States Coast Guard
Date Data Arrived at EDR: 01/27/05	Telephone: 202-260-2342
Date Made Active in Reports: 03/24/05	Last EDR Contact: 01/12/06
Number of Days to Update: 56	Next Scheduled EDR Contact: 04/24/06
	Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 08/17/05	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 10/18/05	Telephone: 202-366-4555
Date Made Active in Reports: 12/07/05	Last EDR Contact: 01/16/06
Number of Days to Update: 50	Next Scheduled EDR Contact: 04/17/06
	Data Release Frequency: Annually

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 08/02/05	Source: Environmental Protection Agency
Date Data Arrived at EDR: 08/12/05	Telephone: 703-603-8867
Date Made Active in Reports: 10/06/05	Last EDR Contact: 01/24/06
Number of Days to Update: 55	Next Scheduled EDR Contact: 04/03/06
	Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 01/10/05	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/11/05	Telephone: 703-603-8867
Date Made Active in Reports: 04/06/05	Last EDR Contact: 01/20/06
Number of Days to Update: 54	Next Scheduled EDR Contact: 04/03/06
	Data Release Frequency: Varies

Figure 5.5 Example of records research source summary (provided by EDR).

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/04	Source: USGS
Date Data Arrived at EDR: 02/08/05	Telephone: 703-692-8801
Date Made Active in Reports: 08/04/05	Last EDR Contact: 11/11/05
Number of Days to Update: 177	Next Scheduled EDR Contact: 02/06/06
	Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/04	Source: U.S. Army Corps of Engineers
Date Data Arrived at EDR: 06/29/05	Telephone: 202-528-4285
Date Made Active in Reports: 08/08/05	Last EDR Contact: 01/19/06
Number of Days to Update: 40	Next Scheduled EDR Contact: 04/03/06
	Data Release Frequency: Varies

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assesament Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 11/29/05	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/05/05	Telephone: 202-566-2777
Date Made Active in Reports: 01/30/06	Last EDR Contact: 11/30/05
Number of Days to Update: 56	Next Scheduled EDR Contact: 03/13/06
	Data Release Frequency: Semi-Annually

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/14/04	Source: Department of Justice, Consent Decree Library
Date Data Arrived at EDR: 02/15/05	Telephone: Varies
Date Made Active in Reports: 04/25/05	Last EDR Contact: 01/26/06
Number of Days to Update: 69	Next Scheduled EDR Contact: 04/24/06
	Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 10/07/05	Source: EPA
Date Data Arrived at EDR: 10/20/05	Telephone: 703-416-0223
Date Made Active in Reports: 12/07/05	Last EDR Contact: 01/04/06
Number of Days to Update: 48	Next Scheduled EDR Contact: 04/03/06
	Data Release Frequency: Annually

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Figure 5.5 Example of records research source summary (provided by EDR).

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UMTRA: Uranium Mill Tailings Sites
Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 11/04/05
Date Data Arrived at EDR: 11/28/05
Date Made Active in Reports: 01/30/06
Number of Days to Update: 63

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 10/28/05
Next Scheduled EDR Contact: 12/19/05
Data Release Frequency: Varies

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/85
Date Data Arrived at EDR: 08/09/04
Date Made Active in Reports: 09/17/04
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/04
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

TRIS: Toxic Chemical Release Inventory System
Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/03
Date Data Arrived at EDR: 07/13/05
Date Made Active in Reports: 08/17/05
Number of Days to Update: 35

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 12/21/05
Next Scheduled EDR Contact: 03/20/06
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/02
Date Data Arrived at EDR: 04/27/04
Date Made Active in Reports: 05/21/04
Number of Days to Update: 24

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 01/30/06
Next Scheduled EDR Contact: 04/17/06
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/12/05
Date Data Arrived at EDR: 10/31/05
Date Made Active in Reports: 12/20/05
Number of Days to Update: 50

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 12/20/05
Next Scheduled EDR Contact: 03/20/06
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

Date of Government Version: 10/12/05
Date Data Arrived at EDR: 10/31/05
Date Made Active in Reports: 12/20/05
Number of Days to Update: 50

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 12/20/05
Next Scheduled EDR Contact: 03/20/06
Data Release Frequency: Quarterly

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Figure 5.5 Example of records research source summary (provided by EDR).

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/03	Source: EPA
Date Data Arrived at EDR: 01/03/05	Telephone: 202-564-4203
Date Made Active in Reports: 01/25/05	Last EDR Contact: 01/16/06
Number of Days to Update: 22	Next Scheduled EDR Contact: 04/17/06
	Data Release Frequency: Annually

PADS: PCB Activity Database System

PCB Activity Database: PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 08/30/05	Source: EPA
Date Data Arrived at EDR: 09/13/05	Telephone: 202-564-3887
Date Made Active in Reports: 10/27/05	Last EDR Contact: 12/29/05
Number of Days to Update: 44	Next Scheduled EDR Contact: 02/06/06
	Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/18/05	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 10/31/05	Telephone: 301-415-7169
Date Made Active in Reports: 12/20/05	Last EDR Contact: 01/03/06
Number of Days to Update: 50	Next Scheduled EDR Contact: 04/03/06
	Data Release Frequency: Quarterly

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 11/08/05	Source: Department of Labor, Mine Safety and Health Administration
Date Data Arrived at EDR: 12/27/05	Telephone: 303-231-5959
Date Made Active in Reports: 01/30/06	Last EDR Contact: 12/27/05
Number of Days to Update: 34	Next Scheduled EDR Contact: 03/27/06
	Data Release Frequency: Semi-Annually

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 09/29/05	Source: EPA
Date Data Arrived at EDR: 10/04/05	Telephone: N/A
Date Made Active in Reports: 11/14/05	Last EDR Contact: 01/03/06
Number of Days to Update: 41	Next Scheduled EDR Contact: 04/03/06
	Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Figure 5.5 Example of records research source summary (provided by EDR).

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/17/95
Date Data Arrived at EDR: 07/03/95
Date Made Active in Reports: 08/07/95
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 12/05/05
Next Scheduled EDR Contact: 03/06/06
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/03
Date Data Arrived at EDR: 06/17/05
Date Made Active in Reports: 08/04/05
Number of Days to Update: 48

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/12/05
Next Scheduled EDR Contact: 12/12/05
Data Release Frequency: Biennially

STATE AND LOCAL RECORDS

SHWS: Florida's State-Funded Action Sites
State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 11/18/05
Date Data Arrived at EDR: 12/21/05
Date Made Active in Reports: 01/26/06
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: 850-488-0190
Last EDR Contact: 12/21/05
Next Scheduled EDR Contact: 03/20/06
Data Release Frequency: Semi-Annually

SWF/LF: Solid Waste Facility Database
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/14/05
Date Data Arrived at EDR: 11/14/05
Date Made Active in Reports: 11/28/05
Number of Days to Update: 14

Source: Department of Environmental Protection
Telephone: 850-922-7121
Last EDR Contact: 11/14/05
Next Scheduled EDR Contact: 02/13/06
Data Release Frequency: Semi-Annually

LUST: PCT01 - Petroleum Contamination Detail Report
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 11/02/05
Date Data Arrived at EDR: 12/01/05
Date Made Active in Reports: 01/05/06
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 850-245-8839
Last EDR Contact: 12/01/05
Next Scheduled EDR Contact: 02/27/06
Data Release Frequency: Quarterly

UST: STI02 - Facility/Owner/Tank Report
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 11/02/05
Date Data Arrived at EDR: 12/01/05
Date Made Active in Reports: 01/04/06
Number of Days to Update: 34

Source: Department of Environmental Protection
Telephone: 850-245-8839
Last EDR Contact: 12/01/05
Next Scheduled EDR Contact: 02/27/06
Data Release Frequency: Quarterly

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Figure 5.5 Example of records research source summary (provided by EDR).

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

AST: STI02 - Facility/Owner/Tank Report
Registered Aboveground Storage Tanks.

Date of Government Version: 11/02/05
Date Data Arrived at EDR: 12/01/05
Date Made Active in Reports: 01/04/06
Number of Days to Update: 34

Source: Department of Environmental Protection
Telephone: 850-245-8839
Last EDR Contact: 12/01/05
Next Scheduled EDR Contact: 02/27/06
Data Release Frequency: Quarterly

FL SITES: Sites List

Date of Government Version: 12/31/89
Date Data Arrived at EDR: 05/09/94
Date Made Active in Reports: 08/04/94
Number of Days to Update: 87

Source: Department of Environmental Protection
Telephone: 850-245-8705
Last EDR Contact: 03/24/94
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SPILLS: Oil and Hazardous Materials Incidents
Statewide oil and hazardous materials inland incidents.

Date of Government Version: 10/10/05
Date Data Arrived at EDR: 10/12/05
Date Made Active in Reports: 11/14/05
Number of Days to Update: 33

Source: Department of Environmental Protection
Telephone: 850-488-2974
Last EDR Contact: 02/06/06
Next Scheduled EDR Contact: 05/08/06
Data Release Frequency: Semi-Annually

ENG CONTROLS: Institutional Controls Registry
The registry is a database of all contaminated sites in the state of Florida which are subject to engineering controls. Engineering Controls encompass a variety of engineered remedies to contain and/or reduce contamination, and/or physical barriers intended to limit access to property. ECs include fences, signs, guards, landfill caps, provision of potable water, slurry walls, sheet pile (vertical caps), pumping and treatment of groundwater, monitoring wells, and vapor extraction systems.

Date of Government Version: 11/04/05
Date Data Arrived at EDR: 11/14/05
Date Made Active in Reports: 11/28/05
Number of Days to Update: 14

Source: Department of Environmental Protection
Telephone: 850-245-8927
Last EDR Contact: 01/30/06
Next Scheduled EDR Contact: 05/01/06
Data Release Frequency: Semi-Annually

Inst Control: Institutional Controls Registry
The registry is a database of all contaminated sites in the state of Florida which are subject to institutional and engineering controls.

Date of Government Version: 11/04/05
Date Data Arrived at EDR: 11/14/05
Date Made Active in Reports: 11/28/05
Number of Days to Update: 14

Source: Department of Environmental Protection
Telephone: 850-245-8927
Last EDR Contact: 01/30/06
Next Scheduled EDR Contact: 05/01/06
Data Release Frequency: Semi-Annually

VCP: Voluntary Cleanup Sites

Date of Government Version: 12/20/05
Date Data Arrived at EDR: 12/21/05
Date Made Active in Reports: 01/26/06
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: 850-245-8705
Last EDR Contact: 12/20/05
Next Scheduled EDR Contact: 03/20/06
Data Release Frequency: Varies

DRY CLEANERS: Drycleaning Facilities

Date of Government Version: 11/02/05
Date Data Arrived at EDR: 11/22/05
Date Made Active in Reports: 01/05/06
Number of Days to Update: 44

Source: Department of Environmental Protection
Telephone: 850-245-8927
Last EDR Contact: 11/22/05
Next Scheduled EDR Contact: 02/20/06
Data Release Frequency: Semi-Annually

Figure 5.5 Example of records research source summary (provided by EDR).

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PRIORITYCLEANERS: Priority Ranking List
The Florida Legislature has established a state-funded program to cleanup properties that are contaminated as a result of the operations of a drycleaning facility.

Date of Government Version: 12/01/05
Date Data Arrived at EDR: 12/12/05
Date Made Active in Reports: 01/05/06
Number of Days to Update: 24

Source: Department of Environmental Protection
Telephone: 850-245-8927
Last EDR Contact: 12/05/05
Next Scheduled EDR Contact: 02/20/06
Data Release Frequency: Varies

DEDB: Ethylene Dibromide Database Results
Ethylene dibromide (EDB), a soil fumigant, that has been detected in drinking water wells. The amount found exceeds the maximum contaminant level as stated in Chapter 62-550 or 520. It is a potential threat to public health when present in drinking water.

Date of Government Version: 10/19/05
Date Data Arrived at EDR: 10/24/05
Date Made Active in Reports: 11/28/05
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 850-245-8335
Last EDR Contact: 01/16/06
Next Scheduled EDR Contact: 04/17/06
Data Release Frequency: Varies

Brownfields: Brownfield Areas

Date of Government Version: 10/30/05
Date Data Arrived at EDR: 11/02/05
Date Made Active in Reports: 11/28/05
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: 850-413-0062
Last EDR Contact: 01/31/06
Next Scheduled EDR Contact: 05/01/06
Data Release Frequency: Semi-Annually

WASTEWATER: Wastewater Facility Regulation Database
Domestic and industrial wastewater facilities.

Date of Government Version: 11/16/05
Date Data Arrived at EDR: 12/05/05
Date Made Active in Reports: 01/05/06
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 850-921-9495
Last EDR Contact: 12/05/05
Next Scheduled EDR Contact: 03/06/06
Data Release Frequency: Quarterly

FL Cattle Dip. Vats: Cattle Dipping Vats

Date of Government Version: 05/01/94
Date Data Arrived at EDR: 06/06/94
Date Made Active in Reports: 08/17/94
Number of Days to Update: 72

Source: Department of Environmental Protection
Telephone: 850-488-3601
Last EDR Contact: 02/06/06
Next Scheduled EDR Contact: 05/08/06
Data Release Frequency: No Update Planned

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/04
Date Data Arrived at EDR: 02/08/05
Date Made Active in Reports: 08/04/05
Number of Days to Update: 177

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 11/11/05
Next Scheduled EDR Contact: 02/06/06
Data Release Frequency: Semi-Annually

INDIAN LUST: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Minnesota, Mississippi and North Carolina

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Figure 5.5 Example of records research source summary (provided by EDR).

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/06/05
Date Data Arrived at EDR: 07/11/05
Date Made Active in Reports: 08/08/05
Number of Days to Update: 28

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 11/21/05
Next Scheduled EDR Contact: 02/20/06
Data Release Frequency: Varies

INDIAN UST: Underground Storage Tanks on Indian Land

Date of Government Version: 06/06/05
Date Data Arrived at EDR: 07/11/05
Date Made Active in Reports: 08/08/05
Number of Days to Update: 28

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 08/25/06
Next Scheduled EDR Contact: 11/21/05
Data Release Frequency: Varies

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: 11/15/05
Date Data Arrived at EDR: 12/05/05
Date Made Active in Reports: 12/28/05
Number of Days to Update: 23

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: 01/25/06
Next Scheduled EDR Contact: 04/24/06
Data Release Frequency: No Update Planned

COUNTY RECORDS

ALACHUA COUNTY:

Facility List

List of all regulated facilities in Alachua County.

Date of Government Version: 01/20/05
Date Data Arrived at EDR: 01/21/05
Date Made Active in Reports: 02/18/05
Number of Days to Update: 28

Source: Alachua County Environmental Protection Department
Telephone: 352-264-6800
Last EDR Contact: 02/06/06
Next Scheduled EDR Contact: 03/20/06
Data Release Frequency: Annually

BROWARD COUNTY:

Underground Storage Tanks

Date of Government Version: 12/01/02
Date Data Arrived at EDR: 01/31/03
Date Made Active in Reports: 02/24/03
Number of Days to Update: 24

Source: Department of Natural Resources Protection
Telephone: 954-519-1292
Last EDR Contact: 01/23/06
Next Scheduled EDR Contact: 03/27/06
Data Release Frequency: Annually

Notice Of Violations Sites

NOV facilities have received a notice of violation letter under the Broward County Chapter 27 Code.

Date of Government Version: 12/01/02
Date Data Arrived at EDR: 01/31/03
Date Made Active in Reports: 02/14/03
Number of Days to Update: 14

Source: Department of Natural Resources Protection
Telephone: 954-519-1292
Last EDR Contact: 01/23/06
Next Scheduled EDR Contact: 03/27/06
Data Release Frequency: Annually

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Figure 5.5 Example of records research source summary (provided by EDR).

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Semi-Annual Inventory Report on Contaminated Locations

Early Detection Incentive/Environmental Assessment Remediation. This report monitors the status and remediation progress of known contaminated locations within Broward County. Sites listed by the US EPA, the Florida Department of Environmental Protection, and sites licensed for contamination assessment and cleanup by the Division of Pollution Prevention and Remediation Programs of the Department.

Date of Government Version: 01/01/04
Date Data Arrived at EDR: 06/28/04
Date Made Active in Reports: 08/12/04
Number of Days to Update: 45

Source: Broward County Department of Natural Resources Protection
Telephone: 954-519-1260
Last EDR Contact: 12/29/05
Next Scheduled EDR Contact: 03/27/06
Data Release Frequency: Semi-Annually

Hazardous Material Sites

HM sites use or store greater than 25 gallons of hazardous materials per month.

Date of Government Version: 12/01/02
Date Data Arrived at EDR: 01/31/03
Date Made Active in Reports: 02/14/03
Number of Days to Update: 14

Source: Department of Natural Resources Protection
Telephone: 954-519-1292
Last EDR Contact: 01/23/06
Next Scheduled EDR Contact: 03/27/06
Data Release Frequency: Annually

MIAMI-DADE COUNTY:

Underground Storage Tanks

Date of Government Version: 10/11/05
Date Data Arrived at EDR: 10/12/05
Date Made Active in Reports: 11/18/05
Number of Days to Update: 36

Source: Department of Environmental Resource Management
Telephone: 305-372-6700
Last EDR Contact: 12/27/05
Next Scheduled EDR Contact: 03/27/06
Data Release Frequency: Semi-Annually

Grease Trap Sites

Any non-residential facility that discharges waste to a sanitary sewer.

Date of Government Version: 10/11/05
Date Data Arrived at EDR: 10/12/05
Date Made Active in Reports: 11/14/05
Number of Days to Update: 33

Source: Dade County Dept. of Env. Resources Mgmt.
Telephone: 305-372-6508
Last EDR Contact: 12/27/05
Next Scheduled EDR Contact: 03/27/06
Data Release Frequency: Semi-Annually

Enforcement Case Tracking System Sites

Date of Government Version: 02/17/05
Date Data Arrived at EDR: 06/29/05
Date Made Active in Reports: 07/26/05
Number of Days to Update: 27

Source: Department of Environmental Resources Management
Telephone: 305-372-6755
Last EDR Contact: 09/26/05
Next Scheduled EDR Contact: 12/26/05
Data Release Frequency: Semi-Annually

Fuel Spills Cases

Date of Government Version: 05/24/04
Date Data Arrived at EDR: 06/03/04
Date Made Active in Reports: 06/17/04
Number of Days to Update: 14

Source: Department of Environmental Resources Management
Telephone: 305-372-6755
Last EDR Contact: 09/26/05
Next Scheduled EDR Contact: 12/26/05
Data Release Frequency: Semi-Annually

Hazardous Waste Sites

Sites with the potential to generate waste

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Figure 5.5 Example of records research source summary (provided by EDR).

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 11/05/03
Date Data Arrived at EDR: 05/14/04
Date Made Active in Reports: 06/17/04
Number of Days to Update: 34

Source: Dade County Department of Environmental Resources Management
Telephone: 305-372-6755
Last EDR Contact: 12/27/05
Next Scheduled EDR Contact: 03/27/06
Data Release Frequency: Semi-Annually

Air Permit Sites

Date of Government Version: 05/31/05
Date Data Arrived at EDR: 06/29/05
Date Made Active in Reports: 07/26/05
Number of Days to Update: 27

Source: Department of Environmental Resources Management
Telephone: 305-372-6755
Last EDR Contact: 12/27/05
Next Scheduled EDR Contact: 03/27/06
Data Release Frequency: Semi-Annually

Industrial Waste Permit Sites

Facilities that either generate more than 25,000 of wastewater per day to sanitary sewers or are pre-defined by EPA.

Date of Government Version: 10/11/05
Date Data Arrived at EDR: 10/12/05
Date Made Active in Reports: 11/14/05
Number of Days to Update: 33

Source: Department of Environmental Resources Management
Telephone: 305-372-6700
Last EDR Contact: 12/27/05
Next Scheduled EDR Contact: 03/27/06
Data Release Frequency: Semi-Annually

Industrial Waste Type 2-4 Sites

IW2s are facilities having reclaim or recycling systems with no discharges, aboveground holding tanks or spill prevention and countermeasure plans. IW4s are facilities that discharge an effluent to the ground.

Date of Government Version: 06/13/05
Date Data Arrived at EDR: 06/29/05
Date Made Active in Reports: 07/26/05
Number of Days to Update: 27

Source: Department of Environmental Resources Management
Telephone: 305-372-6700
Last EDR Contact: 12/27/05
Next Scheduled EDR Contact: 03/27/06
Data Release Frequency: Semi-Annually

Industrial Waste Type 5 Sites

Generally these facilities fall under the category of "conditionally exempt small quantity generator" or "small quantity generator".

Date of Government Version: 06/13/05
Date Data Arrived at EDR: 06/29/05
Date Made Active in Reports: 07/26/05
Number of Days to Update: 27

Source: Department of Environmental Resources Management
Telephone: 305-372-6700
Last EDR Contact: 12/27/05
Next Scheduled EDR Contact: 03/27/06
Data Release Frequency: Semi-Annually

Industrial Waste Type 6

Permits issued to those non-residential land uses located within the major drinking water wellfield protection areas that are not served by sanitary sewers. These facilities do not handle hazardous materials but are regulated because of the env. sensitivity of the areas where they are located.

Date of Government Version: 06/13/05
Date Data Arrived at EDR: 06/29/05
Date Made Active in Reports: 07/26/05
Number of Days to Update: 27

Source: Department of Environmental Resources Management
Telephone: 305-372-6700
Last EDR Contact: 12/27/05
Next Scheduled EDR Contact: 03/27/06
Data Release Frequency: Semi-Annually

TC1607950.1s Page GR-12

Figure 5.5 Example of records research source summary (provided by EDR).

Phase I report unless it is specifically included in the scope of work negotiated with the client. Including such additional information implies that it is the consultant's standard practice and exposes the consultant to liability for the non-scope information.

Mandatory and Optional Physical Setting Records Information

In addition to the standard environmental record sources, E 1527 also requires the EP to review a current topographic map to satisfy the *physical setting source* requirement. Additional physical setting sources can be provided to further supplement the information and are required when migration of contamination is likely or additional sources are commonly used in local practice. A list of mandatory and optional physical setting sources is presented in Fig. 5.6. Sometimes the development plans by a construction/engineering firm are available to the environmental professional. They can be an additional useful site-specific physical setting source.

Historical Research

1940 or first development

E 1527 requires the EPs to conduct research into the historical uses of the property to the first developed use or 1940, whichever is the earlier. For example, if the property was first developed for agriculture in 1850, the research would begin with 1850. If the property was first developed for residential property in 1960, the research would have to go back to 1940. The research is limited to issues that could potentially be associated with RECs. The EPs only have to identify general types of use unless the research uncovers industrial uses that may have resulted in contamination of the property. Industrial uses dictate further research into specific industrial classification and potential contaminants associated with it.

Physical Setting sources

- **Mandatory** *Current 7.5 Minute Topographic Map*
- **Optional** *Ground Water Maps*
  Bedrock Geology Maps
  Surficial Geology Maps
  Soil Maps
  Other credible sources

Figure 5.6 Physical setting sources (adapted from E 1527).

Figure 5.7 lists standard historical sources listed in E 1527. Any one or any combination of the sources in the table may be used to satisfy the requirement of the Standard. For example, if aerial photographs are available for the history of the property, reviewing this source alone will suffice. The only exception to this rule is associated with *recorded land title records*. Because the title research usually provides minimal information with respect to the use of the property, one additional source must be used in conjunction with this source.

Five year intervals

The historical research is required for the subject property only. The uses of the surrounding area should be provided in the report to the extent they are identified in the course of the Phase I ESA.

E 1527 does not require EPs to research the uses in intervals of less than five years. If the information is not *reasonably ascertainable,* gaps in the research can be explained as *data failure*. If the research shows that no significant change in the use of the property took place at longer than the five-year interval, the Standard does not require any further research. For example, if an aerial photograph shows an apartment building on the site in 1954, and the same building is still on the site when the Phase I ESA is being prepared, no intervening intervals need to be researched.

When it is not possible to determine the land use history, any gaps or intervals longer than the five-year interval should be explained in the report. For example, it is not uncommon to have data failure because sufficient records don't exist for land uses prior to the early 1900s.

Only useful information

Many of the historical sources suggested may not provide the EP with useful information with respect to the environmental conditions of the subject property. Such sources can be specifically ex-

Standard Historical Sources

- *Aerial Photographs*
- *Fire Insurance Maps*
- *Property Tax Files*
- *Recorded Land Title Records*
- *USGS 7.5 Minute Topographic Maps*
- *Local Street Directories*
- *Building Department Records*
- *Zoning/Land use records*
- *Other, i.e. Maps, newspaper archives, and records in the files and/or personal knowledge of the property owner or occupants*

Figure 5.7 Standard Historical Sources (adapted from E 1527).

cluded from the research based on the EPs' past experience. In some cases the EP may find that the information is not available or incomplete. This lack of or inability to obtain information is termed a data failure. The concept of data failure has traditionally been a part of the ASTM historical research. The AAI introduced a separate concept—the data gap. The EP should not confuse data gaps with data failure. Data failure was introduced to deal with the fact that for properties with a long development history it is difficult or impossible to identify all of the property uses back to the original development. The concept is used to bring closure by noting the problem but satisfying the technical requirements of the Standard. Data failure is a type (thus a subset) of a data gap. The concept of the data gap has been a subject of extensive discussion during the drafting of the 2005 revision of the E 1527 Standard and is addressed in more detail in Chapters 9 and 11. In those chapters it is discussed within the context of both the Standard and the AAI.

Summary

In this chapter we reviewed the required and non-mandatory records research elements associated with Phase I ESAs. We discussed the federal and state records research, physical setting research and historical research of E 1527. We looked at some of the limitations and options the EPs have in meeting the requirements of the Standard.

References

1. E 1527 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM 2005

PART ONE

Chapter 6

Site Reconnaissance

In this chapter, we will discuss practical approaches to site reconnaissance and address issues related to:

- **Guiding principles of site reconnaissance**
- **General site setting**
- **Exterior and interior observations**
- **Documentation and photography**

Guiding Principles of Site Reconnaissance

Site visit is a subset of site reconnaissance

Site reconnaissance is required by the Standard. E 1527 [1] uses two terms associated with site inspection. They are *Site Visit* and *Site Reconnaissance*. Site visit can be considered as a subset of site reconnaissance. Site visit generally refers to inspection activities of the subject property. Site reconnaissance includes those activities but expands the event to the analysis of site visit information in concert with other information in identifying recognized environmental conditions (RECs).

The environmental professional (EP) must visually and physically observe the property and any structures on the property. This entails more than just a drive-by inspection of the property and snapping a few photos out of the car window. Photographs with the rear view mirror showing in the corner (see Fig. 6.1) are difficult to explain to an observant user and can be perceived as an indicator of inadequate effort on the part of the EP. Should the EP have the misfortune of being involved in a legal dispute with respect to the assessment of the property, any details that can be interpreted as a lack of professionalism are readily picked up by the opposing attorney in an attempt to discredit the quality of the EP's work product.

Visually, physically observed

E 1527 recognizes the limitations the EP may encounter during the site reconnaissance and provides guidance with interpretation of the term *visually and physically observed* in the Standard. During a visit, portions of the property may be obstructed by bodies of water, rock formations, ravines, adjacent buildings, snow, vegetation, and other obstacles that may impede the EP's ability to detect

Figure 6.1 Drive-by documentation of Phase I site (provided by BAI, graphic assistance by GRT).

RECs or other significant features of the subject property. The EP should note these physical limitations in the report, but is not required to employ any specialized methods such as diving or air reconnaissance to meet the requirements of E 1527.

Local knowledge is important

Local knowledge is important. From a business and logistical perspective it is preferable for the EP's need to establish a geographical area which they are going to service and become familiar with its environment, local regulation, and local practices. The EP responsible for the report is sometimes not familiar with the general area or is out-of-state. This can be a constraint to the site visit because of the limited local knowledge of the EP. In some cases, this can lead to inaccurate assumptions about the property. For example, consider a subject property along a river. The out of state EP visits the property and notices the adjoining industrial property to the south discharging effluent into the river. A map indicates the industrial site as downstream of the subject site and during the site visit the EP's observation of the flow of the river confirms the map information. In his report, the EP dismisses the potential for the effluent to migrate upstream onto the subject property. Several weeks after the purchase of the property the user finds that the banks of the subject property are contaminated by the discharge from the "downstream effluent." That portion of the river is affected by tidal flow, and two hours after the EP left the property the flow of the river reversed.

EPs sometimes subcontract portions of Phase I ESAs

In some cases, in an attempt to minimize travel and local knowledge research costs, the out-of-town EPs subcontract the site reconnaissance to a local EP. These facts should be disclosed to the user, and all EPs' credentials should be provided. Subcontracting portions of the Phase I ESA tasks can significantly complicate liability issues. Consulting firms should review their subcontracting policies to ensure sufficient protection from liability.

Order of required components is up to the EP's discretion

E 1527 does not require the EPs to conduct the records review, interviews and the site reconnaissance in any specific order. Ideally, when the EPs have most of the information from the records review before physically investigating the site, they are better prepared for the site investigation. In the real world, time limitations and other transaction-imposed constraints often require some of the assessment activities to take place simultaneously or out of the preferred sequence. This may necessitate a second visit to the site. The Standard does not require multiple site visits, but from a practical point of view it is a good strategy to conduct the communications and site reconnaissance activities in a friendly manner to facilitate a return to the site should it become necessary.

EPs should not rely on prior assessments exclusively

In some cases, the property may have been previously assessed and the EP was fortunate enough to receive the prior assessment before conducting the site reconnaissance. Such information can be extremely useful, but the EPs cannot rely on the information in its entirety and must conduct another site visit. Over-reliance on prior information can focus the attention of the EPs in areas previously identified as potential problems and can result in some RECs being missed. Prior information should not deter the EPs from conducting a full and complete investigation. Most EPs develop a systematic approach to site visits and use that approach consistently. The approach can be as simple as using the transaction screen questionnaire from E 1528 [2] to ensure that the areas covered by the Standard are addressed. Another method is to review Section 8 of E 1527 and generate a list of items to note during the site visit. Table 6.1 is an example of the list.

The list in Table 6.1 is not all-inclusive. Local knowledge and the particular expertise of the EP may generate additional categories depending on the characteristics of the subject property and local practice. All of the items on the list in Table 6.1 are included and specifically mentioned in Section 8 of E 1527. At a minimum, these observations should be a part of any Phase I ESA. The EPs do not necessarily have to write a paragraph of notes on each of the 28 items, but through various documentation techniques such as systematic photography the EPs should address each of the points listed. The EPs should select a site reconnaissance methodology that does not leave any of the points listed in E 1527 out of the documentation of the report.

Table 6.1 Observable conditions during site reconnaissance.

Property identification:	
1. Methodology for walk over:	
2. Limitations:	
3. General setting/neighboring properties:	
	North:
	East:
	South:
	West:
4. Current uses subject property:	
5. Current uses neighboring property:	
6. Current uses surrounding area:	
7. Past uses subject property:	
8. Past uses neighboring property:	
9. Past uses surrounding area:	
10. Geologic, hydrogeologic, hydrologic and topographic conditions:	
11. Structures and improvements on subject property:	
12. Roads:	
13 Water supply:	
14 Sewage disposal system:	
15 Storage tanks:	
16 Chemical storage:	
17 Drums/containers:	
18 Solid waste disposal:	
19 Pools of liquid:	
20 Ponds, pits, lagoons:	
21 Odors:	
22 PCB electrical/hydraulic:	
23 Heating/ cooling:	
24 Drains/sumps:	
25 Leaks, stains, corrosion:	
26 Stressed vegetation:	
27 Waste water/cooling water:	
28 Wells:	

The ESA extends beyond the property boundary

The E 1527 *site reconnaissance* includes three compulsory components: *General setting, Exterior observations and Interior observations*. It is helpful to arrange these three components in a logical order, starting with the observations of the area and gradually reducing the focus to specific items associated with and potentially

impacting specific portions of the subject property. The information gathered during site reconnaissance must be considered together with all of the other information obtained during the ESA, i.e., historical research, interviews and specialized knowledge. Often, it is only after the parts are considered as a whole that information about a REC will surface.

General Site Setting

The EPs must understand that the Phase I ESA extends beyond the boundary of the subject property. The uses of the surrounding area may potentially impact the environmental condition of the subject property. Contamination from surrounding properties frequently migrates onto the subject property.

From a business perspective, the general setting information provides the user with important site-related information, which estab-

Case Study A.
The use of the surrounding properties may adversely affect the intended use of the subject property although it does not contaminate the property itself.

Your client is considering a purchase of the subject property on the river and turning it into condominiums with a marina. Although the Phase I ESA does not identify and RECs associated with the subject property, when you perform general setting site reconnaissance you notice a paper mill nearby. Prevailing winds cause air quality problems on you client's property. When you Review the records, a list of EPA clean air act violation associated with the paper mill surface. Yet the plant is downstream, not affected by tidal flow, and cannot contaminate your client's property through the waterway or ground water flow. If the client is concerned with CERCLA issue only, he will probably purchase the property. If being able to sell the condominiums is a priority, he may reconsider. Providing anecdotal site setting information in the report may improve your client's ability to reach a sound business decision.

Case Study B.
The use of surrounding property may assist the user in dealing with RECs associated with the subject property.

Phase I ESA identifies several RECs with a potential of having significantly contaminated the subject property. The point sources of the contamination (petroleum USTs and ASTs) have been removed, and the general site setting reconnaissance reveals that the neighboring properties appear to be significantly more contaminated and are undergoing *brownfields* redevelopment. This information maybe extremely helpful to the user in reaching a business decision about the subject property. In this scenario, the Phase I ESA report identified 13 independent RECs with sources on surrounding properties migrating onto subject site and causing potential historical petroleum product contamination of the subject property. Relying on the *Brownfields* redevelopment initiative, documentation of the surrounding area and the age of the potential contamination, and speculating on natural attenuation, the user purchased the subject property without any further assessment.

Figure 6.2 Case studies on intended use of the property.

lishes a foundation for the business decision-making process about the subject property. It would be a mistake for the EPs to jump to the conclusion that the user is only seeking one of the LLP defenses. The two case studies in Fig. 6.2 illustrate this point.

Under *general site setting*, E 1527 requires the EPs to review the current and past uses of adjoining properties. Let's take a closer look at the requirements of the Standard in this respect. According to E 1527, *adjoining property* is any real property or properties, the border of which is contiguous or partially contiguous with that of the property, or would be contiguous or partially contiguous with that of the property but for a street, road, or other public thoroughfare separating them. This concept is illustrated in Fig. 6.3. For example, in the report the EP writes that the adjoining property to the west is a six-lane highway, without providing any information about the property on the other side of the highway. This would constitute failure to meet the requirements of the E 1527 Standard.

The EP is required to identify past uses of the adjoining properties. E 1527 Section 9.4.1.4 explains that identification of past uses of the adjoining properties during site reconnaissance consists of:

- Physically observed items during the site visit,
- Information gained from interviews, and
- Records research.

Adjoining property uses

The physically observed items can include old signs on neighboring buildings (e.g., ABC Paint Factory, AAA Transmission Repair, Lee's Dry-Cleaning), neighboring building characteristics (multiple automotive repair bays, power plant, sewage treatment plant), or waste materials dumped on the adjoining properties (automotive batteries, tires, drums, piles of dirt, tank farms). Figures 6.4–6.21 show several examples of conditions that the environmental professional may encounter.

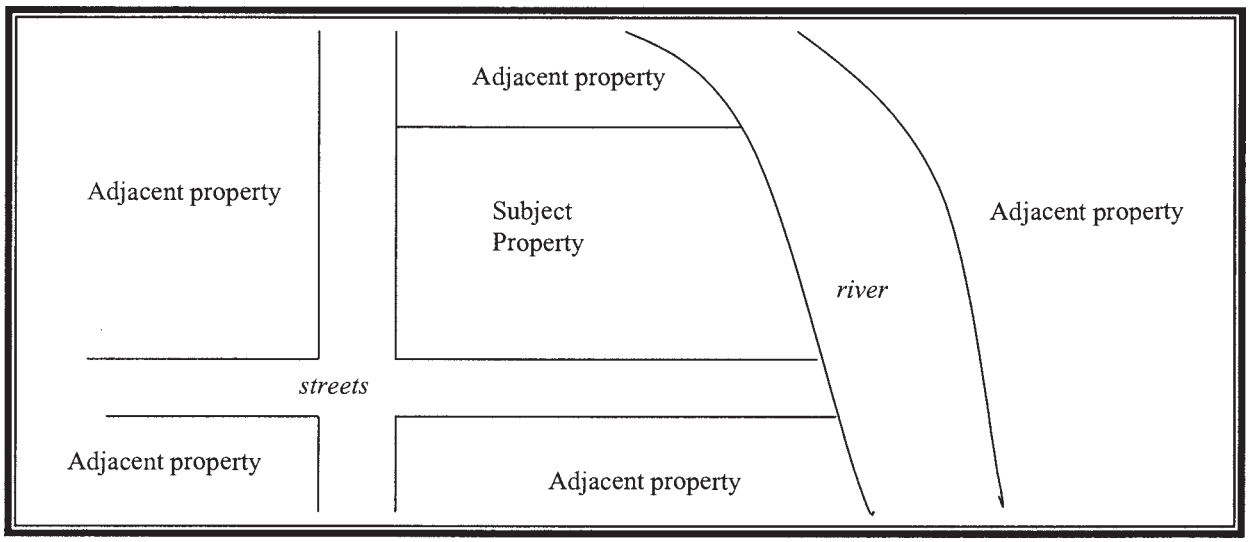

Figure 6.3 E 1527 Concept of adjoining property.

Figure 6.4 Use of the property as orange orchard and water truck filling and mixing station (provided by Derrek Verlaan).

Figure 6.5 Portions of the property used for harvesting marijuana—unlikely to be significant CERCLA or Brownfields issue but may be a law enforcement issue (provided by Derrek Verlaan).

Figure 6.6 Nuisance dumping typically impacts the property due to cost associated with removal but typically is not a REC (provided by Derrek Verlaan).

Figure 6.7 Yet another reason why not to do a driveby by seemingly pristine property. The pile was not visible from the road. Although not a REC the cost associated with removal can be significant and should be noted in the report (provided by Derrek Verlaan).

The interviews can also provide information about surrounding properties. E 1527 intends that the EP should ask the questions about the surrounding area, not just the subject property, and should confirm the validity of the answers through physical observation and/or records review. Figure 6.8 is an example where interviews and physical observations can reveal significant detail about a REC. The subject tank sustained hurricane damage, and closer examination of the tank and interview and delivery records were used to identify the contaminant and the time and volume of the spill.

Identifying the current and historical uses of the surrounding area

A frequently asked question is: *How much effort is required of the EP when identifying the uses of the adjacent properties, especially with respect to the historical use of those properties?* Only current uses that are visually or physically observed or identified through interviews or records research need to be identified in the report. With respect to the historical uses of adjoining properties, Records Review Section 8.3.3 of E 1527 provides the answer to that question. The EP has to identify historical information about the surrounding area only if it is revealed in the course of historical research of the subject property. E 1527 also allows the EP to use discretion in limiting the extent of the effort. The EP is not re-

Figure 6.8 Damaged tank containing 455 oil (insert) and soil staining and stressed vegetation due to the release (provided by Derrek Verlaan).

quired to independently research the uses of the adjoining properties to 1940 or the earliest development. That requirement pertains to the subject property only.

The underlying principle of the Standard is to consider and use the information gathered in site reconnaissance together with the information gathered in other portions of the process such as the interviews and/or historical records research.

Another frequently asked question in this area deals with the historical subdivision of properties. E 1527 considers only current (at the time of the Phase I ESA) boundary. If the property was a portion of a larger parcel in the past, the Standard does not require the EPs to continue to expand the research boundary with every subdivision event.

Exterior and Interior Observations

The approach presented in the previous section on general site setting is applicable to this section of the site reconnaissance as well. The E 1527 Standard further subdivides the exterior and interior observations into the following three categories: *general observations, interior observations* and *exterior observations*. The intent is to identify historical and current uses likely to involve the use, treatment storage, disposal or generation of hazardous sub-

Figure 6.9 Sign listing tenants (provided by BAI, graphic assistance by GRT).

stances. These must be identified by the environmental professional in the report.

General Observations

The information about the uses of the property is considerably more helpful to the user when it specifically identifies the use. For example, instead of retail use the EP should specify that it is a bakery or automotive battery retail store. In a small strip plaza, or properties with multiple tenants, it can be helpful to take a photograph of the mall sign listing the tenants as shown in Fig. 6.9. Signs are often helpful in providing information about current or past uses of the property. The business activities may have ceased, but the sign remains.

These and other evidence of current or historical uses noted during the site reconnaissance (or records research and/or interviews) must be provided to the user in the report. Section 9.4.2 of E 1527 specifically requires the EP to note:

- Hazardous substances and petroleum products in connection with identified uses

Figure 6.10 Exterior observations—Storage tanks (insert) with evidence of release (provided by Derrek Verlaan).

- Hazardous substances and petroleum products not in connection with identified uses
- Unidentified substance containers
- Drums
- Pools of liquid
- Odors
- Storage tanks
- PCBs—Polychlorinated biphenyls (light ballasts are excluded)

The details of Section 9.4.2 are not repeated here. The current version of the E 1527 Standard is included in Appendix A of this manual. EPs need to carefully review this section as well as the rest of the Standard to develop a thorough understanding of their reporting responsibilities with respect to E 1527.

Exterior Observations

The observations of the exterior of the subject property must be documented in the report. Exterior observations that must be described in the report are listed in Section 9.4.4 of E 1527 and include:

- Pits, ponds, lagoons
- Stained soil or pavement

Figure 6.11 Hole to the ground water from recent direct push investigation (provided by Derrek Verlaan).

- Stressed vegetation
- Solid waste
- Waste water
- Wells
- Septic systems

EPs need to carefully review this section of the Standard to develop a thorough understanding of their reporting responsibilities with respect to exterior observations.

Local knowledge is important

EPs' experience and local knowledge of historical uses of the general area can be invaluable in helping to identify potential problem areas. For example, familiarity with local industries may provide clues about waste water systems. Local knowledge of plants' biology can provide clues about stressed vegetation that may be caused by natural cycles and not necessarily by contamination of the subject property.

The EPs must also pay particular attention to any unusual observations during the site visit. Piles of fill dirt, berms, and dead end roads, gullies, and other unusual topographic features should be noted. These may be associated with historical uses of the property, and the EPs should attempt to gain information about the reasons for their presence from the interviews. Figure 6.11 depicts a pho-

Figure 6.12 Interior observations of a floor drain with a solids trap (provided by Derrek Verlaan).

tograph of a hole. Tire tracks leading to this location and the information from the owner of the property helped identify this location as the area of recent sampling at this property.

Interior Observations

Accessible common areas

Interior observations are limited to accessible common areas—those expected to be used by the occupants or the public. It is not necessary to look under floors, above ceilings or climb onto roofs. In addition to observations listed above Section 9.4.3—interior observations—of E 1527, the Standard specifically requires the EP to identify:

- Heating/cooling
- Stains or corrosion
- Drains or sumps

Again, the EPs need to carefully review this section and other sections of the Standard to develop a thorough understanding of their reporting responsibilities with respect to E 1527. The observations should be described and documented in sufficient detail to provide the user with a thorough understanding of observed conditions and how they may potentially impact the environmental

Figure 6.13 Diesel pump with unprotected fuel lines causing release to the canal below (provided by Derrek Verlaan).

Figure 6.14 Multiple underground installations. The EP should identify the purpose and significance of the findings (provided by Derrek Verlaan).

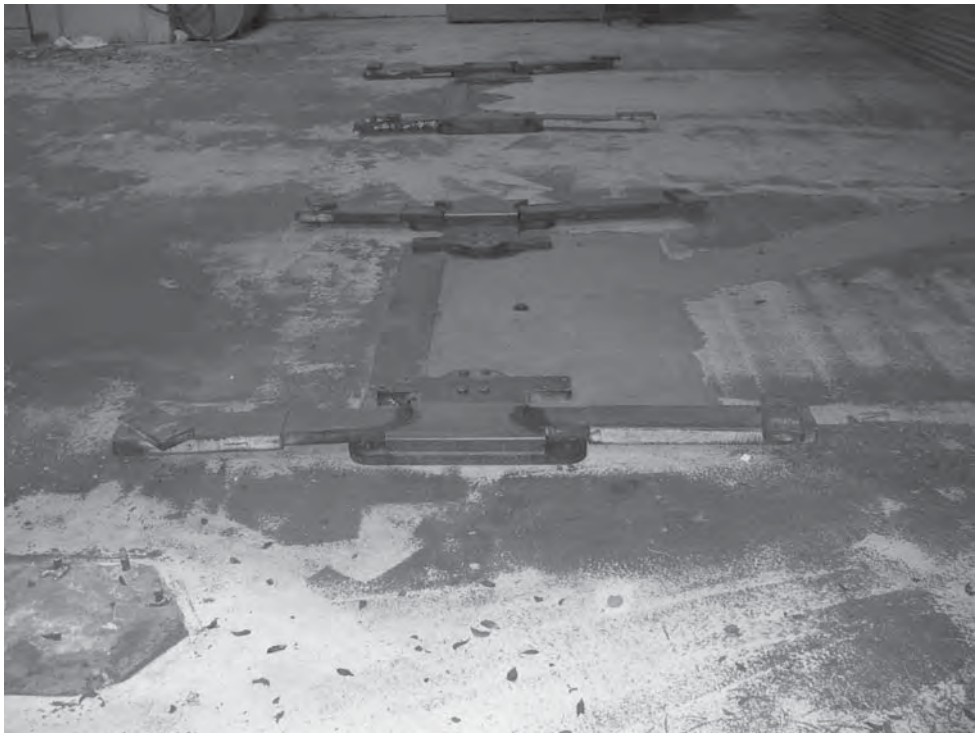

Figure 6.15 Evidence of underground lift storage tank repair. Lift storage tanks typically do not require registration because of their small size. Some of the older tanks used PCB containing oils. Many of these installations were prone to leaks (provided by Derrek Verlaan).

Figure 6.16 Evidence of leaking drums that were recently moved (provided by Derrek Verlaan).

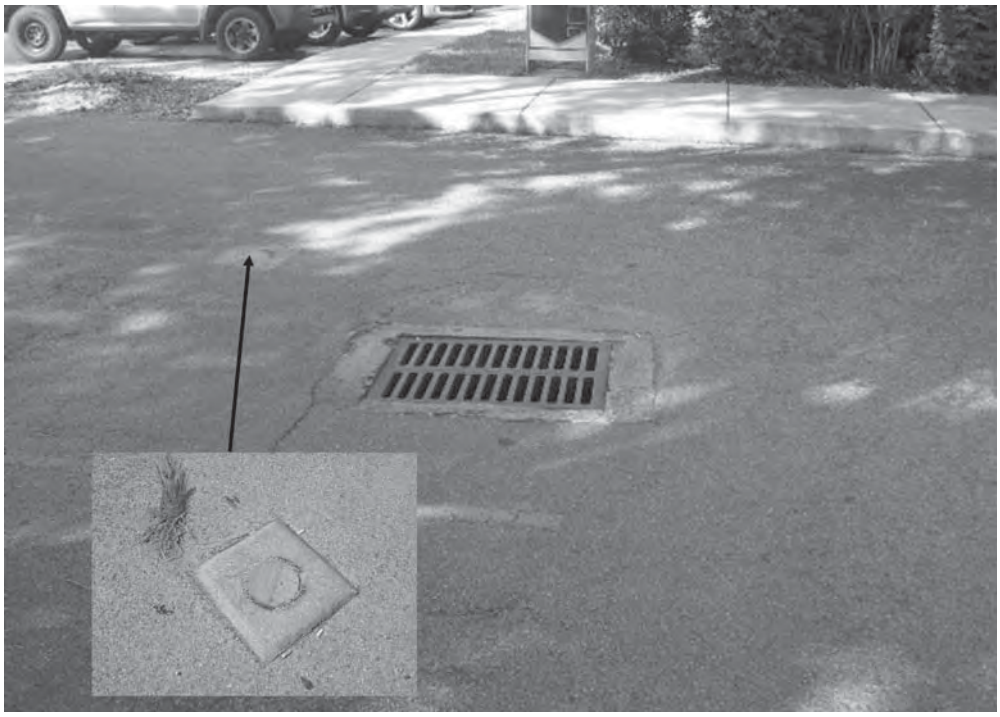

Figure 6.17 Abandoned monitoring well in a parking lot (provided by Derrek Verlaan).

conditions of the subject property. Whenever possible, the EPs need to evaluate the exterior and interior observations together. For example, an interior sump pump observation should be evaluated with any exterior noted discharges and impacts such as stressed vegetation.

With respect to the site reconnaissance E 1527 requires the EP to document the methodology of the walkover. Documentation of the methodology enables the user to understand exactly what was done, and it provides future reference for the EP. It is possible to miss a REC due to the methodology employed in the walkover, especially with large properties. Describing the methodology with sufficient detail provides information to the user about a potential for missing a REC.

Document methodology sufficiently to retrace steps

In a recent Phase I ESA the EP described his methodology for a walkover as: "via the transverse method, whereby the property is walked in a random pattern." The report included six photographs of the 5-acre property. This methodology description did not sufficiently describe to the user which parts of the property the EP actually inspected. When asked if the EP walked over certain portions of the property, the EP could not remember. Documentation should always be adequate to provide a method for the EPs to retrace their actions. With larger properties, it is helpful to identify the method in greater detail. For example, "using a grid pattern

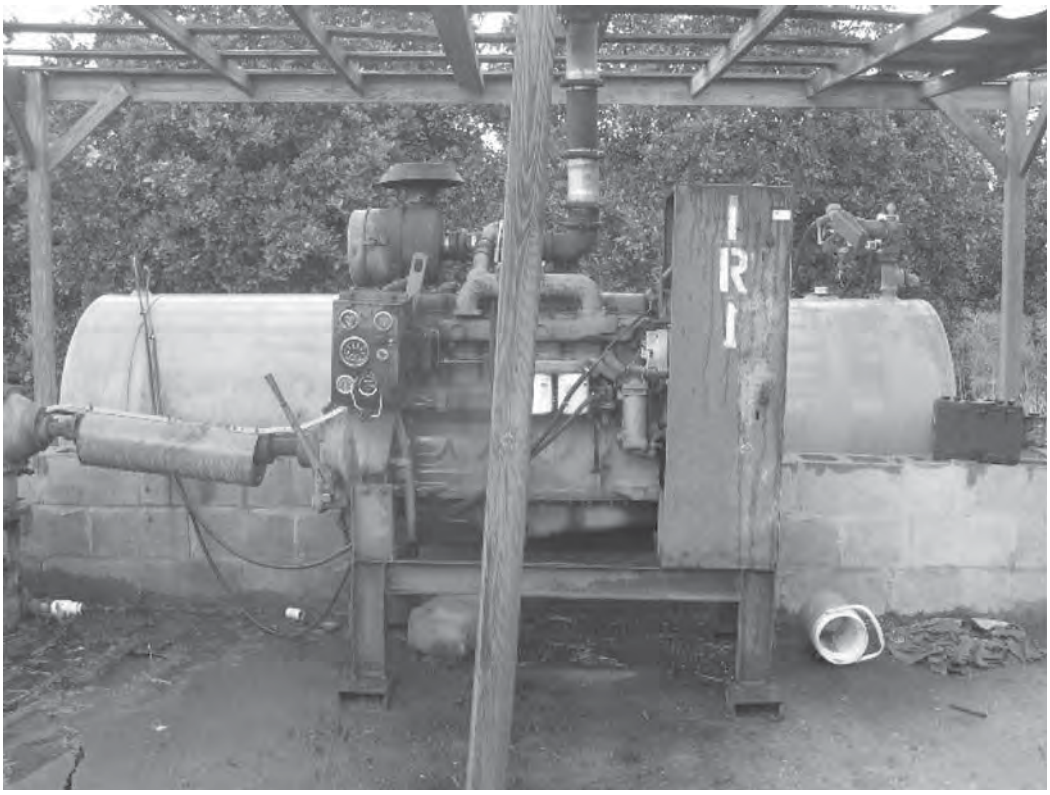

Figure 6.18 Evidence of releases at agricultural pump and storage tank (provided by Derrek Verlaan).

with 100-yard intervals" or "north and south transverses on 100-foot centers," and identifying the starting location tells the user where the EP walked during site reconnaissance.

Figure 6.19 Overturned oil tank used at a well pump with stressed vegetation (provided by Derrek Verlaan).

Figure 6.20 Simple way to document corner location (provided by Derrek Verlaan).

Field notes are the only required documentation

This method can be used in combination with numbered photographs taken at a specific point during the walkover. A description of the direction of the view in each photograph further documents the methodology used. For smaller properties, a descriptive photographic method can be sufficient.

Except for field notes, E 1527 does not specify or recommend a specific method of documentation. Numerous methodologies have been employed by consultants, including video, tape recorders, and standard and digital photography. It is up to the EP to select a method that meets the needs of a particular ESA. Different ESAs may dictate different forms of documentation. Note that photographs are not required as part of the E 1527.

Photographs are used most often

Photography, by far, has been the most widely used method of documentation in Phase I ESAs. The old cliche "a picture is worth a thousand words" is appropriate here. The EP's time is valuable. It takes only a fraction of a second to take a photograph of a property condition that could literally take hours to describe in field notes.

Photographs also help with the interpretation of the language. For example: *Stained pavement* is required to be described in the report. A photograph of the stain enables the user to use judgment without having to rely solely on the EP's interpretation. Photography is a valid and useful tool, but like any other tool it is prone to equipment failure and/or operator error. Besides making sure that you have film in your camera it is appropriate to consider several helpful hints on ESA photography.

Be ready for emergencies

Since modern cameras operate on batteries, make sure that your field kit includes extra batteries. Electronics sometimes have a tendency to act up due to extremes of weather (heat, humidity, cold). Some EPs carry small disposable cameras just in case the "hi tech" one fails.

How many pictures should the EPs take? The EPs should take a sufficient number of photographs to document findings and methods used. The documentation should enable the EP to retrace indi-

Figure 6.21 Documenting transformer and oil label (provided by Derrek Verlaan).

vidual steps in the Phase I ESA, process. Six photographs, combined with a description of "random transverse walkover" do not represent sufficient documentation of a five-acre property. An extra photograph is considerably less expensive than revisiting the site.

Use photos to jog memory

Having a sufficient number of photographs of the site and the surrounding area can also be extremely helpful when combined with aerial photograph research. The camera can sometimes capture an important finding that may have escaped the eye during site reconnaissance. Thorough review of photographs can enable the EP to recognize missed information before the completion of the Phase I ESA and enables its inclusion in the final report.

Site reconnaissance requires both interior and exterior observations. In some cases, interior spaces are large with insufficient light, or no light at all (e.g., abandoned warehouse). The integrated "pop up" flashes of most modern cameras are not capable of sufficiently illuminating large areas, resulting in dark backgrounds in the photographs. Consider carrying a more powerful external flash.

Technical photography differs from artistic photography

Technical photography differs from creative photography. In creative photography, the artist's goal is to evoke a feeling or an emotion. The point of Phase I ESA photography is to document a condition. To that end, the photographs should include points of reference and objects that enable the user to judge size or scale. Figure 6.22A and 6.22B shows a photograph of a stain with and without a scale. By including an object of known size in the photograph the viewer can judge the size of the stain. Another method

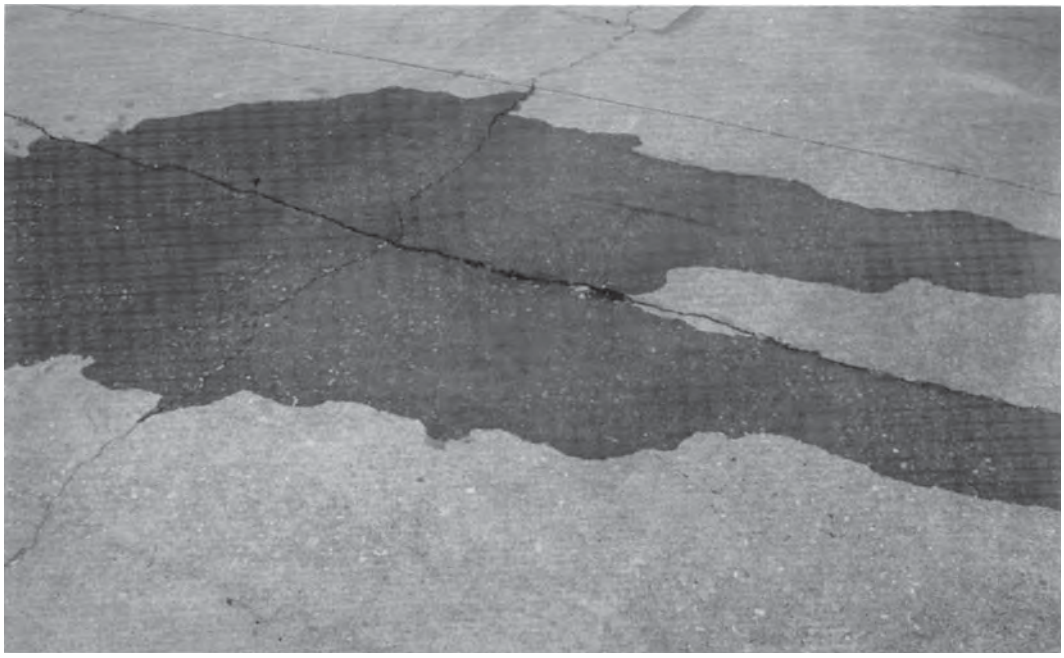

Figure 6.22A Stain without a scale reference (provided by BAI, graphic assistance by GRT).

would be to include a background which provides the scale, such as a 55-gallon drum. Without the size reference, it is difficult to judge the size from the photograph.

EPs often use the small "Date" inserts printed in the corner of the photographs. This allows the user to see when the photos were taken. If you are using this tool, make sure that you check the date before you start shooting. It can be embarrassing when the date of site reconnaissance in your report does not match the date on your photographs.

Who own the negatives?

The photographs taken during the site reconnaissance are part of the EP's file. Occasionally, the real estate transaction falls apart and results in litigation. Overnight, the EP's files, including notes, photographs, and negatives, become evidence. File retention policies and issues such as who owns and maintains the negatives need to be considered by consulting firms involved in ESAs. Legal arguments can be made for retaining in the file only the pictures used in the report or for retaining all site photos. It is important that some consistent policy be adopted.

The use of digital cameras is gaining some popularity in the marketplace. The comparative ease by which the image can be changed and manipulated has created several problems in evidentiary admissibility of this type of photography. Consultants need to be cognizant of the limitations.

Summary

In this chapter, we reviewed several practical implications of E 1527 Section 9 on site reconnaissance. We pointed out environ-

Figure 6.22B Stain with a scale reference (provided by BAI, graphic assistance by GRT).

mental professionals' reporting responsibilities associated with general site setting, and exterior and interior observations. We addressed some of the documentation issues and discussed the role of photography as a documentation tool during Phase I ESAs.

References

1. E 1527 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM 2005

2. E 1528 *Standard Practice for Environmental Site Assessments: Transaction Screen Process*, ASTM 2005

PART ONE

Chapter 7

Safety and Health

In this chapter, we will discuss health and safety issues associated with both Phase I ESAs and Phase II ESAs. Our discussion will focus on:

- **Safety and health issues associated with site investigations**
- **Training requirements**
- **Standard operating procedures (SOPs)**
- **Site safety plans**
- **Initial site survey and reconnaissance**

Safety and Health Issues Associated with Site Investigations

Safety & health issues are applicable to all ESAs

The ASTM Phase I and Phase II Environmental Site Assessment (ESA) Standards [1,2] do not provide any direction or guidance to the environmental professionals (EPs) with respect to health and safety issues. This fact should not be construed to imply that safety is not important or that it does not apply to the assessment activities. With Phase I ESA investigations the issues can be very basic and driven by common sense. For example, the EPs are not required by the Standard to enter confined spaces, and common sense tells the EPs not to engage in sniffing and taste testing of the contents of a 55-gallon industrial drum. However, there have been instances where EPs' safety was affected by factors not necessarily related to recognized environmental conditions (RECs). For example, an EP walked into an abandoned warehouse when the door stuck shut, and the EP was rescued several hours later only because her home office knew where to look for her.

In addition to RECs, guard dogs, snakes, alligators and unfriendly neighbors, migrants or occupants have all been encountered by the unsuspecting EPs performing ESAs. Figure 7.1 depicts a healthy beehive that was suddenly encountered as the EP rounded a corner of the building. Figure 7.2 shows a citrus canker decontamination station. In some instances, the EP may have to go through a decontamination zone after inspecting a property that is under quarantine. Some RECs such as an above ground storage tank are readily observable, and do not present any health or safety hazards to the EP inspecting the site. The complexity of the safety issues

generally increases when the investigation of the RECs results in a health and safety hazard. The hazards also tend to increase with the level of the assessment. For example, in Phase II ESAs the EP is actually trying to confirm contamination at the site and is trying to locate and sample the areas with highest concentrations.

Figure 7.1 Beehive on a side of a building (provided by Derrek Verlaan).

Basic training requirements
Standard operating procedures
Site safety plans

In this chapter, we will discuss safety and health issues as they relate to Phase I/II environmental site investigations. Our aim is to introduce issues for consideration that will be useful when planning and conducting any site investigation, regardless of type and duration. Basic training requirements under Federal regulations, Standard Operating Procedures, Site Safety Plans, and initial site survey and reconnaissance will be discussed.

Potential exposure to toxic or chemically active substances during any type of environmental site investigation presents a special concern, because they can be inhaled, absorbed through the skin, ingested, or directly introduced into our bodies through cuts or abrasions. Effects can vary depending upon the dose, contact time, type of substance, and lethality. As we already pointed out, site hazards are not limited to chemicals. Site hazards may include physical

hazards (slip, trip, fall, electrical shock, falling objects, etc.), biological and radioactive material, heat stress, ergonomic factors, and many others.

Acute and chronic exposures

There are two types of exposures that may result during on-site investigation. These are acute and chronic exposures. As a rule, acute exposures are of relatively short duration (minutes to 1–2 days), and the person is quite aware that an exposure has occurred due to the symptoms that appear. Chronic exposures are considered more "insidious." That is, the exposure is continuous at low doses over a long period of time (months to years), and the person being exposed may not be aware that harm is being done until the symptoms appear. Due to the relatively short nature of Phase I and II ESAs the chronic exposures are not frequently encountered during these investigations. At any specific incident or site investigation, the hazardous properties of the materials may only represent potential risks, while at other sites the risks are confirmed and significant. The health and safety of investigation personnel requires that the risks be assessed and that appropriate measures be taken to minimize or eliminate the threat of exposure.

Figure 7.2 Citrus canker decontamination zone. During the citrus canker eradication program persons and equipment leaving areas with canker were required to go through decontamination (photos provided by Derrek Verlaan).

Training Requirements

Depending upon the type and duration of the site investigation, many diverse types of health and safety training may be required under several different agencies. Figure 7.3 lists some of the regulated training requirements that the EPs may have to undergo before performing certain portions of an ESA.

Types of Potential Training Requirements

- *Contingency and Emergency Response Planning (OSHA, EPA and DOT)*
- *Confined Space Entry (29 CFR 1910.146)*
- *Hearing Protection (29 CFR 1910.95)*
- *Ergonomics (OSHA)*
- *Eye Protection (29 CFR 1910.132-133)*
- *Fire Prevention (29 CFR 1910.38)*
- *First Aid and Bloodborne Pathogens (29 CFR 1910.1030)*
- *Hand and Foot Protection (29 CFR 1910.132, 136)*
- *Hazard Communication (29 CFR 1910.1200)*
- *Lifting Techniques (OSHA)*
- *Lockout/Tagout (29 CFR 1910.147)*
- *Respiratory Protection 29 CFR 1910.134)*
- *Tool Safety (CFR 1910.211-247)*
- *Environmental and Personnel Monitoring (EPA and OSHA)*
- *HAZMAT (Hazardous Materials) Shipping (49 CFR) DOT*
- *HAZWOPER (Hazardous Waste Operations and Emergency Response 29 CFR 1910.120)*
- *RCRA (Resource Conservation Recovery Act) EPA (40 CFR)*
- *Other EPA (Environmental Protection Agency) regulations (40 CFR)*
- *Other OSHA (Occupational Safety and Health Administration) regulations (29 CFR)*
- *Other DOT (Department of Transportation) regulations (49 CFR)*
- *State and Local agency requirements*

Figure 7.3 Training requirements [2,4].

EPs must take responsibility for their safety

What is frequently lost in all of the regulatory mandated training is the simple fact that all mandates were designed to protect personnel. Many times EPs are so busy preparing site safety plans, conducting training, and filling out required documentation to support their actions, that they simply forget that the intent is to protect themselves and others from an injury on the job. Safety is first and foremost the EPs' personal responsibility. EPs need to take full responsibility for their actions while conducting any site investigation. To let their own protection depend entirely upon others and the mandated regulations is foolhardy at best. The EPs should also

always remember to protect themselves and others first and only then consider protecting the equipment and the environment.

The two regulations most likely utilized by environmental professionals during a Phase I/II investigation are OSHA's HAZWOPER Standard and the training requirements under EPA's RCRA. These regulations contain general requirements for safety and health programs, site characterization and analysis, site control, training, medical surveillance, engineering controls, safe work practices, personal protective equipment, exposure monitoring, informational programs, material handling, decontamination, emergency procedures, illumination, sanitation, site excavation, emergency response procedures, and sampling protocols.

Preplanning is the key to save completion of an ESA

As with any site investigation, preplanning is always the key. Training is a critical step in assuring that all of the planning is utilized correctly. Trying to determine if a respirator should have been worn, and if so which type, after removing the bung from a drum for sampling, is too late.

Once procedures have been put in place and training has been completed, following through with procedures may save the EP's life. An individual at a major chemical company was recently killed because he failed to follow procedures for which he had been trained many times. After being splashed with what he thought was a minor amount of a chemical, he decided to bypass the emergency shower (use of the emergency shower was required) and proceeded instead to a locker room shower, where he collapsed and died. These types of incidents reinforce the need for each individual to take responsibility for their own safety, and to follow the procedures for which they have been trained.

Standard Operating Procedures

There are many procedures that may be required while performing the variety of tasks associated with a site investigation that could potentially involve hazardous substances. These procedures may be safety, technical, administrative, or management oriented. All of these procedures are intended to provide uniform instructions for accomplishing specific tasks.

If not appropriately trained, EPs should seek out the help of competent professionals familiar with safety and health issues that will help them develop standard operating procedures (SOPs). Figure 7.4 lists SOP principles that should be considered for all site investigations.

Principles of Standard Operating Procedures

- *Prepared in advance*
- *Prepared using the best available information concerning the site and potential hazards*
- *Field-tested, periodically reviewed and revised when necessary*
- *Written documents and easy to use*
- *Procedures read by all personnel prior to site entry and copies of SOPs available on-site at all times*
- *Personnel trained in procedures used in the written documents*
- *Sufficiently generic to fit most site situations and adaptable to site-specific issues*

Figure 7.4 Principles of SOPs.

For any given site investigation, it is recommended that SOPs should be adapted to protect on-site personnel against the hazards present at the specific site and for the types of activities to be performed (i.e., Phase II sampling).

Site Safety Plans

Site safety plans are developed to establish policies and procedures for protecting the health and safety of site assessment personnel during all on-site operations. The plan contains information about the known or suspected hazards, routine, and special procedures, and other instructions for protecting the site assessment workers. It should identify emergency procedures for unexpected site conditions as well.

Figure 7.5 outlines the content and issues that should be included and considered in a site safety plan.

As with any plan, modifications should be made where appropriate to satisfy the needs of the investigation. Depending upon the tasks to be performed and the potential hazards encountered, flexibility is the rule.

Initial Site Survey and Reconnaissance

Occupants may be a source of safety information

This is perhaps the most challenging part of any site investigation. It is not uncommon for the EP to enter a site with little or no idea of what types of hazards may be present. Therefore, before entering any site for the first time, the EP should collect as much information as possible concerning the type or degree of potential hazards and risks that may exist. Since most ESAs are conducted with strict time constraints, the EP may have limited time to research hazards independently. The users, owners and especially the occupants may be the best sources of safety information associated with

their operation. In many instances, the occupants will have their own safety and health requirements that the EPs will be required to follow when entering the facilities. The EPs should seek out this information and be cognizant of occupant imposed requirements.

Occupant knowledge is an indicator

The review of the occupants' site-safety information is useful to the EPs for two main reasons. First, the EPs gain an understanding of potential hazards and can plan to take appropriate steps to protect themselves during site inspection and any site activities. Second, the safety information enables the EPs to gain an understanding of the current use of the property with respect to hazardous chemicals and potential contaminants of the subject property. If the occupants have appropriate plans and documentation in place, it demonstrates their awareness of environmental issues. If the occupants' documentation is lacking, their awareness of environmental requirements may be inadequate and some of the operational/disposal activities may have been inappropriate. Lack of awareness of environmental issues increases the potential for contamination on the subject property as well as a warning to the EP not to rely on the occupants' information for personal safety.

Abandoned properties require extra attention

The safety issues can become complicated when the EPs are conducting site assessments on abandoned properties where the structures present physical hazards and lack of information about the former operations makes the chemical safety preplanning difficult. In these instances, research into the industrial uses of chemicals and associated toxicology can be extremely helpful.

Site Safety Plan Components

- *Introduction*
- *Key Personnel*
- *Task/Safety and Health Risk Analysis (historical overview of site and task by task risk analysis)*
- *Personnel Training Requirements*
- *Personal Protective Equipment Required (if any)*
- *Medical Surveillance (if required)*
- *Monitoring (personal and environmental)*
- *Site Control Measures (if any)*
- *Decontamination Procedures (if required)*
- *Emergency Response/Contingency Plan*
- *Confined Space Entry Procedures (if required)*

Figure 7.5 Components of a safety plan.

EPs must keep current on safety issues

With the advances in computerized information, many sources exist that can make the research relatively quick. For example, *Patty's Industrial Hygiene and Toxicology* [5] is a ten-volume professional reference work covering occupational health and safety standards. It is available in a CD-ROM version that contains all the text, references, charts, and graphics from the printed versions. It also includes the NIOSH Manual of Analytical Methods, which is a compendium of analytical methods for air and biological samples. The electronic version enables efficient and easy searches. EPs who do not have current safety and toxicology information in their office libraries should make appropriate efforts to establish research capability at public libraries or with libraries on college and university campuses.

Personal protective equipment according to hazard level

Types of hazards encountered during an environmental site inspection may include organic and inorganic vapors and gases, radiation, oxygen deficiency or oxygen-enriched atmospheres, combustible gases, biological, or physical hazards. Personal Protective Equipment (PPE) should be selected as appropriate using the four HAZWOPER categories (Level A-highest, Level B, Level C, and Level D-least), and should be based upon hazard and risk of exposure.

If decontamination procedures are necessary, it should be assumed (initially) that all personnel and equipment leaving the "Exclusion Zone" (area of potential contamination) are grossly contaminated. Initial decontamination plans are based on worst-case situations or assume that no information is available about the incident. However, specific conditions at the site or the presence of other information from off-site should be evaluated for modification of the plan. Issues such as the type of containment, amount of contamination, PPE level, equipment type required to complete the task (drill rig, hand auger, etc.), and other factors should be considered.

Summary

In this chapter, safety and health issues associated with site investigations were discussed. The importance of appropriate training which stresses the protection of personnel and not just following the regulations was emphasized. The two most likely regulations (HAZWOPER and RCRA) to be of interest were indicated. The types and importance of Standard Operating Procedures were also discussed. Items for inclusion in Site Safety Plans were provided for reference. Also discussed was the difficulty with initial site entry due to unknown hazards and risks. The main focus of any health and safety is to protect human health. The main responsibility for safety remains with the individual.

References

1. E 1527 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM 2005

2. E 1528 *Standard Practice for Environmental Site Assessments: Transaction Screen Process*, ASTM 2006

3. *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, NIOSH, OSHA, USCG, EPA, 1995

4. *Standard Operating Safety Guides*, U.S. EPA, 1988

5. George D. Clayton, Florence E. Clayton, Levis J. Cralley, Lester V. Cralley, Robert L. Harris, and James S. Bus, *Patty's Industrial Hygiene and Toxicology CD-ROM Version 2.0*, JOHN WILEY & Sons, Inc. 1998

PART ONE

Chapter 8

Interviews

In this chapter, we will discuss E 1527 required elements associated with interviews and practical approaches to interviewing. We will discuss:

- **Interviews with owners and occupants**
- **Interviews with state and/or local government officials**

Interviews with Owners and Occupants

E 1527 [1] requires the environmental professional (EP) to conduct interviews with owners and occupants. The objective of the interviews is to develop information about the subject property and its activities. To accomplish this goal the EPs should seek out the person who has this information. The owners of the property are not necessarily the persons most knowledgeable about the uses of the property. Some are absentee owners and may be out of state with limited knowledge about the everyday business activities on the property. For this reason, E 1527 requires the EPs to make a reasonable effort to locate and interview the *key site manager*.

Key Site Manager

Request user to identify key site manager in writing

The *key site manager* is defined as the person having good knowledge of the uses and physical characteristics of the property. It can be the user, owner, or an employee of the owner, or anyone involved in everyday management of activities associated with the subject property. If the property is an industrial plant, this person could be an environmental manager or health and safety officer of the facility. Depending on who the user is in a particular transaction, the EPs may be able to get some assistance from the user to identify the key site manager. It is good practice for the EPs to request that the user ask the owner to identify the key site manager, and provide a phone number for such a person. This should be done in writing at the outset of the process and included together with the request for helpful documents.

The Standard places an obligation on the user to identify the key site manager for the EP if the user is the owner of the property (see

Section 10.5.1 of E 1527). Users seeking LLPs cannot be owners of the subject property at the time the Phase I ESA is performed. The user can claim LLPs only if *all appropriate inquiry*, including Phase I ESA, took place prior to the aquisition of the property.

Past Owners, Operators and Occupants

The 2005 version of the E 1527 Standard under Section 10.5.4 requires the EP to *interview past owners, operators,* and *occupants* of the *property* who are likely to have material information regarding the potential for contamination. Since these persons may be difficult to reach, the Section in the Standard includes additional language that recognizes these potential difficulties. It limits the obligation to interview to the extent that the persons have been identified and that the information likely to be obtained is not duplicative of information already obtained from other sources. Additional discussion on this topic is presented in Chapter 11 of this manual.

Abandoned Properties

In the case where the subject property is abandoned and there is evidence of potential unauthorized uses of the abandoned property or evidence of uncontrolled access to the property it is necessary to conduct interviews with one or more owners or occupants of neighboring or nearby properties.

User Issues

Key Site Manager is the person with most knowledge about the property

Depending on the particulars of the transaction, there can be numerous users. Two users in the same transaction can have different reasons for conducting a Phase I ESA. For example, we can have the owner who is also key site manager and is looking to refinance the loan. Prior to refinancing, the bank directs the owner to have an EP conduct a Phase I ESA. Although the owner does not qualify for ILD, the bank may. In this case, the bank would have the obligation to identify the owner as the key site manager for the EP.

When the owner is not a user, it is up to the EP to identify the key site manager. For example, if the owner is selling the property and the buyer has hired the EP to perform the Phase I ESA, neither the buyer nor the owner are under any obligation to identify the key site manager for the EP. Although these players do not have the obligation to identify the key site manager, asking them for help in identifying the key site manager generally meets with success. Putting the request in writing at the outset of the Phase I ESA is helpful, because it documents the EP's effort to locate the person most knowledgeable about the property to interview.

Relationship and Timing Issues

Relationships of users, owners and key site managers are important

When conducting the interviews it is imperative for the EPs to recognize the importance of the relationships between the user, the owner, and the key site manager. The relationship can influence the individuals' motivation to respond truthfully to questions during interviews. For example, in the case of an owner applying for refinancing, the owner has a vested interest (the loan) in minimizing the number of RECs identified by the EP on the subject property. The owner may go to great lengths to clean up any evidence of contamination before the site visit, and during the interview try to mislead the EP. A seller of a property, who is not the user, may be similarly motivated to ensure smooth transfer of the property to the new owner. Yet an entirely different motivation toward answering questions may exist if the key site manager is an employee of the seller or an independent businessman leasing the property.

Sometimes the sellers are the Phase I ESA users. For example, a prudent manufacturer may be selling an older property to relocate its manufacturing plant to a new facility. Because the user is concerned about contamination of the subject property by the new owners, they choose to perform Phase I ESA to document that the property was not contaminated at the time it was sold. In this case, the interviewee is motivated to answer truthfully and is willing to provide any documentation to support the answers given.

Although it is advantageous to have all available information before the time of the interview, time constraints placed on the EP by the user sometimes make it impossible to conduct the site visit concurrently with the interviews. Additionally, EPs may not have the time to collect and review all the historical records by the time they conduct the site visit. E 1527 Section 10.4 leaves it up to the EPs' discretion whether to conduct the owner and occupant interviews before, during or after the site visit, with two exceptions. Before the site visit the EP must request helpful documents and ask the user, owner or key site manager whether they know of any proceedings involving the property (see Sections 10.8 and 10.9 of E 1527). Figure 8.1 lists the required elements of E 1527 showing a desirable sequence of events in order to maximize the efficiency of the Phase I ESA process. The section numbers refer to the respective sections of the E 1527 Standard where the requirements are contained.

The EP must try to meet with the key site manager at the site

E 1527 also requires the EP to make at least one attempt to meet with the key site manager at the site. In this manner the key site manager can be present during the walkover and answer any questions the EP may have at the time. From a practical standpoint, having the key site manager present at the time of the site visit has a tendency to make the assessment process more efficient. Questions that come up during observations can be answered immediately, and the key site manager can provide access to locked buildings and warn the EPs of potential physical hazards associated with the inspection.

Occupants

In commercial real estate transactions involving residential properties, E 1527 does not require the EPs to interview residential occupants. On occasion a residential occupant may have specialized knowledge about current or past historical properties and can provide first-hand helpful information. If such a person is identified through the normal process of the Phase I ESA, the EP may interview and use the information. The Standard does not require the EP to engage in any extra effort to determine whether such persons exist.

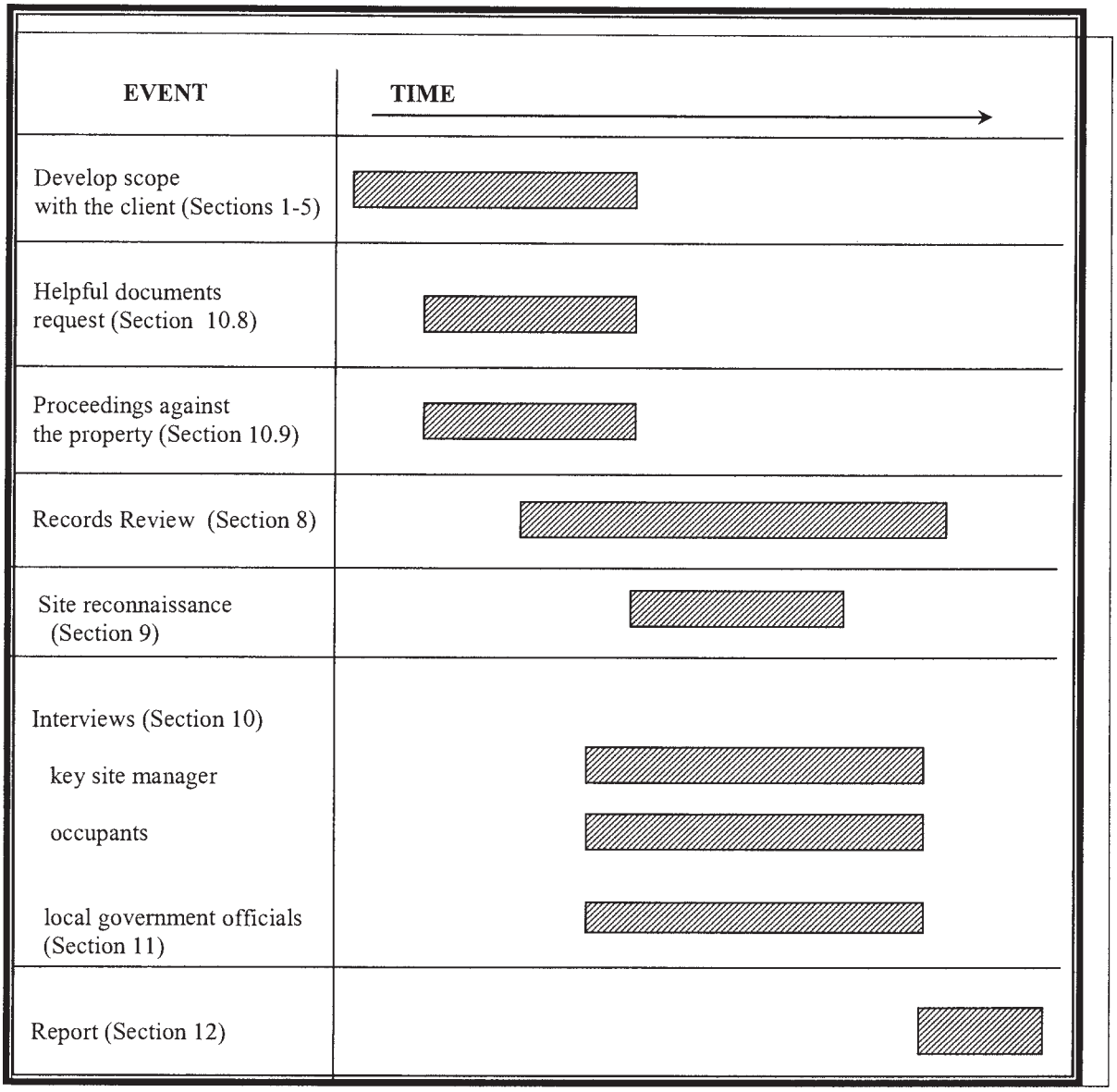

Figure 8.1 Chart of preferred sequence of events

Not all of the occupants at the property need to be interviewed. Figure 8.2 outlines E 1527 requirements.

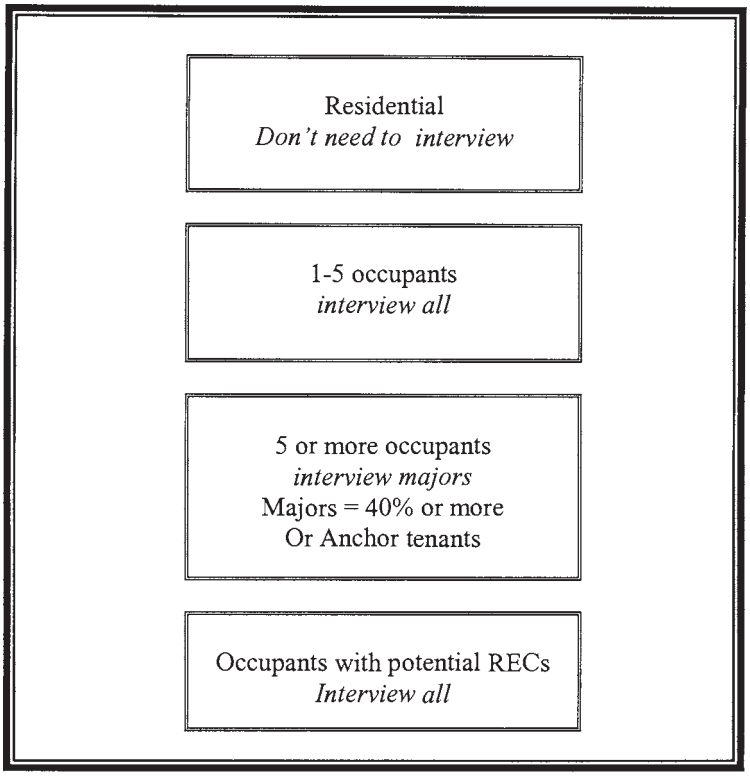

Figure 8.2 Occupant interview requirement categories

Content of the Interviews

Interview users with respect to RECs

E 1527 leaves it up to the environmental professional to develop specific questions to ask. The point of asking the questions is to identify current and historical uses of the subject property with respect to RECs. The EP has to identify the owners and occupants interviewed and must report on the duration of their occupancy. The interviews can be conducted in person, by phone, or in writing.

Develop a list of questions

Just as it was important to develop a standardized methodology for site reconnaissance, it is equally important to develop a number of questions to ask of the owners and occupants. E 1527 provides very little guidance on what questions the EP should ask. This is one reason why the EP generally develops a list of questions to cover during the interviews. As a minimum, EPs' questioning should cover the areas addressed in the site reconnaissance of the Standard and any helpful documents that were obtained or become available during the interview.

Transaction screen questions can serve as a guide

The E 1528 [2] *transaction screen questionnaire* was primarily developed for the person with limited awareness of environmental issues associated with an ESA. It has recently been modified as a document for assessing business risk. Some EPs use the questionnaire as a guidance document for interviews. This may be most helpful to those initially learning to conduct interviews. The questions are very basic if used in their basic *yes/no/unknown* format. In order for the EPs to provide opinions, they generally seek more than just the *yes/no* answers. If using the transaction screen questionnaire, the EPs should ask numerous follow-up questions to gain as much information on the particular subject as possible. The transaction screen questionnaire also serves as a documentation tool. Because it has a separate column for conditions observed at the site, it also enables direct comparison between interview findings and observed conditions at the site. Depending on the local requirements and needs of the EPs, transaction screen questionnaires are often customized by the EPs to include those issues.

EPs must conduct interviews or assign qualified personnel

In order to conform to E 1527 the EPs are not required to conduct the interviews. However, if it is not the EP, E 1527 requires in Section 7.5.1 that the persons conducting the interviews have sufficient training and experience and have the ability to identify issues relevant to RECs. In other words, they do not have to meet the AAI requirements for an EP, but they must have significant experience and in many cases would have qualified as an EP under the previous E 15278 definition. They must ask the questions and make reasonable attempts at providing a sufficient explanation of the meaning of the questions to the persons being interviewed. Persons being interviewed may have difficulty understanding the EP's jargon and may assume different meaning for the terms used. The guide sections of E 1928 provide some additional helpful information and further elaborate on the meaning of the questions. At a minimum, the EP conducting the Phase I ESA interviews should be familiar with *Transaction Screen Guides*. E 1527 assumes that the EP has sufficient training and experience to conduct the interview at a higher level of inquiry than presented in E 1528.

Interviews seek only actual knowledge

With the exception of the user, the interviewee is not under any obligation to answer the EP's questions. The interviewee may also not know the answer to the questions. The EP should request that the persons being interviewed answer the question in good faith and to the best of their knowledge. If the answer to a question is unknown or if the person refuses to answer the question, it does not mean that the EPs failed to conform to the Standard. The EPs need to provide adequate documentation of the questions asked and the responses received. If the questions were asked in writing, sent by mail and no response was received, the EPs have to attempt to follow-up at least once in order to conform to E 1527.

It is often helpful to let the persons being interviewed know that the EP is seeking actual knowledge and information that can be independently verified. *Actual knowledge* is simply something that the individual knows. It does not include information that may be

known by an entity such as their employer. Collecting second-hand information or hearsay is not the point of the interviewing process and is not actual knowledge. Letting the interviewee know at the beginning of the interview about these concepts helps to streamline the process. EPs should document all sources of the information provided.

Interviewing skills vary from one interviewer to the next. The skill is important for identifying RECs associated with the subject property. The interviewer must be a good listener to be able to follow up on key issues. For instance, if the occupant says that he has not seen any staining since the new floor was poured, it should tell the interviewer that there was staining before the new floor was installed. The follow-up question would then address that issue.

EPs do not need to re-ask same questions

Sometimes the EP is performing the Phase I ESA on a piece of property which had a Phase I ESA done previously. If the EP has a copy of the previous assessment including the information from the interviews of the occupants, it is not necessary to ask the same occupant the same questions asked in the previous ESA. The EP can use the information, but must inquire about any new information since the last interview.

Interviews with State and/or Local Government Officials

EPs must interview government officials

Besides interviewing owners and occupants the EPs must also interview one state or local agency officials in order to comply with the minimum requirements of the Standard (see Section 11 of E 1527). E 1527 gives the EP the following choices:

- Local fire department serving the property
- Local or state health agency serving the property
- Local or state environmental or hazardous materials agency serving the area including the property
- Local agencies responsible for the issuance of building permits or groundwater use permits that document the presence of AULs which may identify a recognized environmental condition in the area in which the property is located

Interviews with the local fire department can sometimes provide useful information with respect to the subject property. Because of the emergency management and response requirements, some fire departments collect a wealth of useful information about the businesses that they serve. Frequently they are willing to share the information with the EP. Occasionally, the local fire department has no useful information or the officials are not interested in answering any questions.

Document all interview responses

Agency officials can be very helpful but are often too busy to spend time on interviews with the EPs. It is important to have specific questions in mind. The interview can be conducted as a follow up on information obtained through records research. The EPs are often permitted to review the file and ask specific questions with information associated with the file.

The interviews can be done in person or by telephone. The agency officials are under no obligation to answer the questions or even grant the interview. To comply with the Standard the EP must keep written records of attempted interviews along with persons interviewed and their responses.

Summary

In this chapter, we learned about the requirements of E 1527 with respect to conducting interviews. We talked about the timing and coordination of the requirements in a manner that enables the EPs to maximize the efficiency of the process. We discussed the applicability of the E 1528 *Transaction Screen* process in assisting the EPs in developing a systematic approach toward the interviewing and documentation process. The need to conduct interviews with knowledgeable state or local government officials was also discussed.

References

1. E 1527 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM 2005

2. E 1528 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM 2006

PART ONE

Chapter 9

Report Preparation

In this chapter, we will discuss E 1527 required elements associated with report preparation and consider several practical approaches to evaluation and presentation of the Phase I ESA information to the user. We will address:

- **Evaluation of data**
- **Preparation of the report**
- **EP Statements**
- **Appendices**

Evaluation of Data

The EP is hired to interpret and evaluate the data

We are close to finishing the Phase I Environmental Site Assessment (ESA) process. We completed the required elements of the scope of E 1527 [1], including the records research, inspecting the site and conducting the interviews. We are now ready to evaluate the data and prepare the report for our client.

Section 12 of E 1527 is titled *Evaluation and Report Preparation*. However, this section does not explain the evaluation process to the environmental professional (EP) as the title suggests. Instead, it primarily addresses the requirements with respect to the report preparation. Evaluation is an important element of the Phase I ESA and is usually the reason why the user hired the EP in the first place. Evaluation is the part of the Phase I ESA process where the EPs interpret the data, applying their expertise to the facts gathered throughout the assessment process. It is often included as the opinion, analysis or discussion section of the report.

Up to this point, the EP has been collecting information from a number of different sources. All of the collected information existed at the time the Phase I ESA was conducted and was *reasonably ascertainable,* as defined by the Standard. No new information was generated, no samples were taken, and the investigation into the *recognized environmental conditions* (RECs) at the site consisted of visual and physical observation of the environmental conditions associated with the subject property. Evaluation analyzes all of the assembled information together in preparation for

rendering of the opinions with respect to RECs or the suspected RECs identified for the subject property.

This section was substantially modified in the 2005 version of the Standard. The modifications were made to include discussion of additional investigation, data gaps, and to conform with AAI requirements.

Report Format

There is no required format for the report. Appendix X-4 contains a recommended format. Users may request that a specific format be followed. This is especially true of large banks and similar users who review a lot of reports and prefer a standard format. There are a couple of comments worth noting about Appendix X-4. Section 4.3 is entitled "Site Description" and contains a number of elements similar to the site reconnaissance. The intent of X-4.3 is not to require a detailed discussion as would normally be found in the site reconnaissance, but rather to provide general information about the site setting.

Similarly, there are two sections entitled "Qualifications of the EP" (X4.15 and X4.16.8) The first one refers to the statement of qualifications found in Section 12.13 of the Standard. The second one refers to the general description of the qualifications which are usually provided in the appendix. These are short experience statements for those who worked on the project.

Documentation

This is an area where many reports are deficient. The report should contain sufficient documentation either in the report itself or by reference to allow reconstruction of the work by an EP other than the EP who conducted it. Sources that revealed no findings also need to be included.

Contents of the Report

This section contains two important requirements. The Standard is not specific as to where the information is included, but it does require that the report identify the EP and the person who conducted the site reconnaissance and the interviews if they are different. It also requires the EP to state whether the user(s) provided the EP with information pursuant to the user responsibilities in Section 6. This is essentially the information contained in Appendix X-3 and includes any information about specialized knowledge. If the user fails to respond, it will constitute a data gap. How the EP handles data gaps is discussed later in this section.

This active participation of the user is a significant change in the Phase I process. Historically, if asked, users have not provided any information or simply indicated that they have no information. While it is true that the buyer has limited information about the

property, they need to document that they made a good faith effort to obtain and provide the information. As noted in Appendix X-3, "failure to provide this information could result in a determination that AAI is not complete." There is a difference between failure to respond and responding but not providing any useful information. There is no requirement to provide specific information. The requirement is to make a good faith effort to obtain it.

Scope of Services

The report should describe the scope of services. Some EPs do this by including a copy of the signed proposal (without cost information) in the Appendix. Others provide a brief summary or make reference to the specific ASTM Standard followed.

A single reference to the Standard is appropriate for a generic Phase I designed to address LLP issues. If any non-scope issues are addressed or if the user had requested recommendations, the specific scope of work should be described.

For example, the client may want to assess the business risk associated with owning a building with asbestos. This is not included in an ASTM E 1527 scope. A statement regarding business risk of asbestos isn't a specific scope of work. The scope should indicate whether it is a simple visual inspection for suspected friable materials or an actual survey where samples are to be collected for analysis. In the latter case, the scope would go on to describe the type of samples (friable and/or non-friable); the location (inside and/or outside the structure); and the type of analysis to be run on the collected samples.

Findings

Findings are the facts from the ESA

The Findings Section is a mandatory section. The report must include a section which identifies findings. *Findings* are the facts uncovered throughout the environmental assessment process of E 1527. Typically, findings are those items which are known or suspected environmental conditions, or historical recognized environmental conditions. For example, the property's current use as a distributing warehouse of roofing materials is a finding. Historical use of the property for agricultural purposes is also a finding. The fact that the property did not have any violations with respect to environmental laws is another finding. The findings should be documented in the report. It is possible that some of the findings may not provide any useful information with respect to the RECs associated with the property.

In the report, the EPs should include all of the findings which either relate to the RECs considered or are otherwise significant to the user's needs associated with the transaction. The guiding principle for the EP should be that the user will ultimately have to make a decision as to what to do about the RECs identified with

respect to the subject property. Any findings that shed light on the relevant issues of RECs should therefore be included in the report.

Opinions

Opinions on all findings must be provided. It is possible to handle them as groups. For example: There were two reported spills and five RCRA generators identified in the government records but they are all down gradient and would not impact the subject property. It is also common that multiple sources of information will identify the same item. For example: There is a record of a tank release on site; the owner indicated in the interview that there was a tank problem; the local Health Department representative stated that there was a reported release; and the EP observed the fill port, vent and evidence of what appeared to be test borings during the site walk. The report would state that there were multiple sources of information indicating there had been a release from a UST on the site. The report would go on to identify it as a REC, because soil and possibly groundwater have been impacted.

While there is a requirement for an opinion, there is no requirement for an opinion section. Some EPs provide a separate Opinion Section. Others include the opinion with either the findings or the conclusions. For complicated sites with extensive findings it is usually easier to follow the discussion if there is an actual opinion section. For sites without complex issues or significant findings the opinion discussion is easily combined with a findings and opinion or an opinion and conclusions section.

The opinion discussion must include the logic and reasoning used by the EP in determining that a finding is or is not a REC. This does not have to be an extensive discussion, but it needs to be clear. In the previous examples the spills and RCRA generators were not RECs, because of their down gradient locations. The on-site tank release was a REC, because there were multiple indications of a past release.

There are some situations where EPs may differ in their opinions regarding calling something a REC. It is especially important in those situations to be clear about the logic. These differences of opinion are normally related to the REC concept of material threat of a future release or the likely presence of contamination. An example would be a well documented temporary storage of thousands of gallons of hazardous waste on a site with no indication of a past or present release. One EP may feel that the presence of that much hazardous material in an environment where hazardous material is being routinely handled, where the condition of the containers couldn't be verified, and there is limited containment in the event of an accident, constitutes a material threat of a future release and elects to call it a REC. Another EP might note the presence of a large volume of hazardous material, but note that the operation has a good safety record and that all of the hazardous material is kept in sound containers, and that there was no evidence of a past

or present release. Therefore they did not view the presence as a material threat of a future release, and it did not rise to the level of a REC.

In the 2000 version of the Standard the concept of an HREC was introduced.

This concept is to cover situations where there has been an identified problem and corrective action was taken. Up until the HREC was introduced a remediated past release would have met the definition of a REC, because it was past contamination of the site. There is nothing in the REC definition that qualifies the current status of past contamination. The HREC provides a way of dealing with such situations. After an HREC has been identified it is a finding and the EP must determine if it is still a REC. In a situation where there had been a surface spill that had been excavated and removed with closure samples indicating no residual contamination, the conclusion could be that the HREC is not a REC.

Another example would be a tank closure with a No Further Action Letter (NFA) from the regulatory agency. Additional facts are that it was a gasoline release site closed in 1996, and while samples show low enough levels of BTEX to issue a NFA letter, no samples were collected for MTBE. The site has permeable soil and high groundwater table. The EP might conclude that this HREC is a REC, because of the likely presence of MTBE from the past release.

This HREC situation is another area where it is possible for EPs to vary in their opinion regarding the current status of the site. Both will identify the HREC as a finding, but they may differ in their opinions as to whether it should be considered a REC.

As can be seen from the above discussion, it is in the opinion

Historical recognized environmental condition – an environmental condition which in the past would have been considered a *recognized environmental condition*, but which may or may not be considered a *recognized environmental condition* currently. The final decision rests with the *environmental professional* and will be influenced by the current impact of the *historical recognized environmental condition* on the *property*. If a past release of any *hazardous substances* or petroleum products has occurred in connection with the *property* and has been remediated, with such remediation accepted by the responsible regulatory agency (for example, as evidenced by the issuance of a no further action letter or equivalent), this condition shall be considered an *historical recognized environmental condition* and included in the findings section of the *Phase I Environmental Site Assessment* report. The *environmental professional* shall provide an opinion of the current impact on the *property* of this *historical recognized environmental condition* in the opinion section of the report. If this *historical recognized environmental condition* is determined to be a *recognized environmental condition* at the time the *Phase I Environmental Site Assessment* is conducted, the condition shall be identified as such and listed in the conclusions section of the report.

Figure 9.1 Definition of HREC (from ASTM 1527-05).

discussion that the reader can obtain an understanding of how conservative the EP is in their evaluations. In most areas of the Phase I practice, in the vast majority of reports no RECs are found. In a much smaller percentage of reports the RECs are obvious. "Obvious" in this case means that virtually all EPs would come to the same conclusion. There is an intermediate area where EPs may differ in their opinions. Both can be in full compliance with AAI and ASTM. There is no bright line in the Standard. If the opinion is later challenged, the discussion will focus on the logic and reasoning that the EP used to develop their conclusion.

Opinions should never be guarantees or recommendations. A statement that a particular finding did not impact the subject property can be interpreted as a guarantee. Unless such a statement can be substantiated with sufficient findings, it should not be made.

Opinions based on scientific data

In the mid-eighties, ASTM published several Standards aimed at product liability matters. Although product liability is not necessarily directly related to the environmental assessments, these Standards outline appropriate scientific principles that should be part of any scientifically based opinion. E 678 [2] is a *Standard Practice for Evaluation of Technical Data,* and it addresses the issues which constitute a proper basis for formation of technical opinions. It deals with hypotheses and opinions based on consideration and analysis of technical data. E 620 [3] is a *Standard Practice for Reporting Opinions of Technical Experts*. The Standard covers the scope of information to be contained in written technical reports that expresses an opinion about the adequacy or inadequacy of products that are or may be reasonably expected to be the subject of litigation. Many of the points required by the Standard under the headings of *Descriptive Information* and *Pertinent Facts* are relevant to the work of the EP.

These ASTM Standards provide a scientific framework that should be a part of any expert's opinion, whether it is in the product litigation field or in the environmental field. The EPs, after all, are experts with respect to the environment and are bound by the same scientific principles.

Additional Investigations

This is a new section in the 2005 version of the Standard. It requires that the EP provide an opinion in some circumstances. The specific language is in Fig. 9.2 below.

This is the most problematic language in the Standard. This language is more qualified than the AAI language which simply states, "the inquiry of the environmental professional should include an opinion regarding additional appropriate investigation, if any."

To fully understand this language we need to look at the source and history of this language. It is tied to the AAI discussion about the

Additional investigation – The *environmental professional* should provide an opinion regarding additional appropriate investigation, if any, to detect the presence of *hazardous substances* or petroleum products. This opinion should only be provided in the unusual circumstance when greater certainty is required regarding the identified *recognized environmental conditions*. A Phase I Environmental Site Assessment which includes such an opinion by the *environmental professional* does not render the assessment incomplete. This opinion is not intended to constitute a requirement that the *environmental professional* include any recommendations for *Phase II* or other assessment activities.

Figure 9.2 ASTM description of additional investigation (from ASTM 1527-05).

obviousness of the contamination. This language is not new and has always been part of CERCLA. In the preamble to the AAI Rule EPA makes several important points.

One is that they do not intend to change the way in which the Phase I studies are conducted. That is to say they are not imposing new requirements or altering the practice. Both AAI and the ASTM Standard in Section 12.6.1 indicate that this opinion is NOT intended to constitute a requirement for Phase II recommendations or other assessment activities. It also indicates that the final rule does not require sampling and analysis as part of AAI.

The ASTM language provides more qualifying language. Looking at the ASTM language (Fig. 9.2), it would suggest that these are unusual circumstances when three conditions apply:

a. There is a REC.
b. More certainty is required.
c. The EP has an opinion regarding appropriate additional investigation.

This is subject to interpretation. EPA uses two examples in the preamble to the Rule. One of those is a circumstance when it might be appropriate to conduct additional investigation either pre or post acquisition to fully understand the conditions at the property in order to comply with the statutory requirements for CERCLA liability protections associated with continuing obligations. The second example was when additional investigation would be required to explain existing significant data gaps.

Data Gaps

This is also an entirely new section in the 2005 revision of the Standard. Data gaps are defined in Fig. 9.3.

The Standard requires the EP to comment on significant data gaps that affect the EP's ability to identify RECs. The Standard also requires the EP to identify other sources of information consulted to resolve data gaps.

Data gap versus data failure?

The EP should not confuse data gaps with data failure. Data failure has always been a part of the ASTM concept that applies to Historical Research. The data failure concept was introduced to deal with the fact that, for properties with a long development history, it is usually not possible to identify all of the property uses back to the original development. The concept is used to bring closure by noting the problem but satisfying the technical requirements of the Standard. Data failure is a type of data gap.

Simply having a data gap does not require comment by the EP

The one important clarification of the AAI concept in the ASTM Standard is that the data gap must be significant. Simply having a data gap does not require comment by the EP. The Standard goes on to give some examples of "significant." It further qualifies "significant" by indicating that a data gap can only be significant if the EP's professional experience or other information raises reasonable concerns.

This qualifier helps clean up an ambiguity in AAI. How does one comment on the importance of something you don't know? You may have a data gap because of inability to find information (history, records, interviews) about the property use prior to 1920. If there is no other indication that the lack of information may be important, it is not a significant data gap. You do not need to engage in speculation on what might or might not have happened on that property prior to 1920.

However, if the same area of the site had a confirmed history of industrial use and the site was identified as a foundry in 1880, the lack of information on the uses between 1880 and 1920 would be a significant data gap.

Data gap – a lack of or inability to obtain information required by this practice despite good faith efforts by the *environmental professional* to gather such information. *Data gaps* may result from incompleteness in any of the activities required by this practice, including, but not limited to *site reconnaissance* (e.g., an inability to conduct the *site visit*), and *interviews* (e.g., an inability to interview the *key site manager*, regulatory officials, etc.).

Figure 9.3 Definition of data gap (from ASTM 1527-05).

Conclusions

Once the EPs have all the findings, they evaluate them together and determine whether any constitute a REC. A decision that something is a REC is a conclusion that ASTM requires the EP to identify in the Conclusion Section. For example, a decision that a 30-year-old hydraulic lift with an underground tank containing PCB oil may have contaminated the groundwater on the subject property and thus constitutes a REC is a conclusion.

Conclusions: RECs or not RECs

The decision to identify certain findings as RECs will depend to a large extent on the EP's judgment, the EP's risk tolerance and the EP's interpretation of the E 1527 definition of a REC. At a minimum, the EPs should consider how defendable their particular interpretation of the Standard's language is. How would the EP defend the conclusion if they were questioned by other EPs, users, owners or their attorneys?

Conclusions is one of the few places in the Standard where specific language is required. If no RECs were identified, the language in Fig. 9.4 is used. If RECs are identified, the language in Fig. 9.5 is used.

"We have performed a *Phase I Environmental Site Assessment* in conformance with the scope and limitations of ASTM Practice E 1527 of [insert address or legal description], the *property*. Any exceptions to, or deletions from, this practice are described in Section [ ] of this report. This assessment has revealed no evidence of *recognized environmental conditions* in connection with the *property*," or

Figure 9.4 ASTM required language—no RECs.

"We have performed a *Phase I Environmental Site Assessment* in conformance with the scope and limitations of ASTM Practice E 1527 of [insert address or legal description], the *property*. Any exceptions to, or deletions from, this practice are described in Section [ ] of this report. This assessment has revealed no evidence of *recognized environmental conditions* in connection with the *property* except for the following: (list)."

Figure 9.5 ASTM required language if RECs.

The opinions include the EP's opinion on the impact of various identified conditions or findings. There is no specific requirement about where that discussion should take place. It is commonly done in the section identified as opinion. It could be provided in the Conclusion Section. Note that there is a distinction between discussion of the logic which led to the opinion that something is a REC and the opinion of the EP on the impact of the REC on the property.

There is a tendency on the part of users and other reviewers of Phase I reports to flip to the back of the report and read the conclusions to see if any RECs were identified. For reasons discussed above it is equally important to find the opinion discussion in the report. That opinion discussion includes the reasoning and the impact of the RECs which may not be included in the conclusions Section. This is especially true if the RECs are based on material threat of a future release, based on likely presence, or if there are HRECs associated with the property.

Additional Services

The Standard simply acknowledges that there may be additional services associated with the Phase I. These services generally fall into two categories. One is expanded information about Phase I related issues. This could include risk assessments, more detailed conclusions or recommendations. The second type is discussed in non-scope considerations. These would be things like radon, asbestos and lead paint assessments.

Recommendations are beyond the scope of E 1527

E 1527 does not require the EP to provide the user with recommendations. We have already mentioned that the opinion about additional services should not be construed as a requirement for the EP to provide recommendations. In Section 12.9 recommendations are specifically listed as beyond the scope. If the EPs provide recommendations without users' requests, they are opening themselves up to potential legal action, because they are going beyond the scope of the Standard. There is a logical reason behind the exclusion of recommendations from the scope. Presumably, the EP is an expert, and from an environmental standpoint, a lot more qualified to make recommendations than the user. If the user does not follow EPs' recommendations, they have practically no defense in court. The Standard specifies that the user must decide what to do about the REC. By making the recommendation, the EP has stripped the user of his ability to apply business judgment to the issues of the transaction. When performing Phase I ESAs in accordance with E 1527, the EP should never make recommendations unless specifically contracted to do so by the user. Recommendations, if requested, should be based on the users business objectives and risk tolerence.

The EPs should also take care not to inadvertently provide recommendations as part of their opinions. A statement that a REC appears to have impacted the property and should be investigated further is an opinion which includes a recommendation. A statement that in order to determine if there has been an impact additional investigation would be needed is not a recommendation.

One final aspect of Phase I recommendations is that they increase the liability potential of the EP. In order to make sound recommendations, the EP must have sufficient data to support them. Phase I ESAs seldom provide sufficient data to form a solid scientific basis for specific recommendations. The less data the EP has, the higher the risk of making a wrong recommendation.

Deviations

The Standard requires a listing of all deviations, including those imposed by a third party. Note that deviations made by the EP are conscious decisions not to follow the Standard. It is rare for a situation to exist when the EP elects to do something less than is required by E 1527, and this should be done only in those circumstances where there is a good reason. An example would be that

none of the government records on the other side of the river were reviewed, because they cannot directly impact the subject site.

The EP should also note when they perform additional services. In this case, we are not talking about out of scope services. Examples might be expanding the minimum required search distances or the inclusion of site photographs, since they are not specifically required by the Standard.

This section should also contain a description of any user-imposed constraints, usually referred to as limitations. These might be things like very short delivery dates for the report, limited or restricted access to the property, or directions not to interview certain parties who would typically be interviewed.

Lastly, this section should also include discussion of physical limitations. This would include things like snow covering the ground, steep ravines, or impenetrable vegetation on the site.

References

The report should contain references to sources used in preparation of the report. They should be properly annotated so that they could be retrieved by a third party. These references are frequently included in an appendix.

Signatures

The EP responsible for the report must sign the report. It is not uncommon to include the signatures of others who worked on or reviewed the report. There is no specific requirement as to where the signatures appear in the report. The most common practice is to use a signature page up front or sign at the end of the report.

Environmental Professional Statements

There are two statements which need to be included in any report. These statements are taken directly from AAI requirements. One is a statement regarding the qualifications of the EP. It is simply a statement that the EP meets the qualifications of Appendix X-2. The second one is a general statement of the qualifications in regard to the type of property being assessed in the Phase I.

EPs should establish document retention policy

This language has liability implications which are not fully understood, since the certifications are so new. EPs need to consider that they will have to make this representation. This should be well thought out prior to accepting a client with a site that includes an unusual history of use or for industrial sites involving exotic materials when the EP has had limited prior experience with sites of similar nature, history and setting.

1. "[I, We] declare that, to the best of [my, our] professional knowledge and belief, [I, we] meet the definition of *Environmental professional* as defined in §312.10 of 40 CFR 312" and

2. "[I, We] have the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the subject *property*. [I, We] have developed and performed all the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312."

Figure 9.6 Required professional statements (source ASTM E 1527-05).

Appendices

The Phase I ESA report seldom includes all of the EP's file materials. Some of the handwritten notes or recorded interviews may have been transcribed, and documentation which did not reveal any significant findings may not end up being included in the report. For example, only aerial photographs showing significant changes in the uses of the subject property may end up being included in the report, the rest being maintained in general aerial photography files at the EP's office. The Standard requires that the reports contain sufficient information to support the conclusions reached. The EPs need to decide what information is sufficient to meet that requirement. It is permissible to include the specific source information by reference.

The report must list the names and qualifications of the environmental professionals involved in the Phase I ESA (typically in an appendix). The qualifications of the EPs responsible for the report and the persons involved in the site reconnaissance and interviews, if not the EP, must be included.

EPs also need to develop internal document retention policies

EPs also need to develop internal document retention policies. How long are the files maintained? Is there a point in time when only the essential documentation is retained and the rest is discarded? Who owns the negatives or data files of any photos, and how long should they be retained? Once these policies are established it may be helpful to advise or disclose these policies to the user. User specific business needs may impose special requirements, and they may assume that the file information will be accessible forever. E 1527 does not provide any guidance with respect to document retention policies.

Under certain conditions, the EP may not be able to finish the Phase I. For example, while performing Phase I the EP encounters a REC which is sufficiently serious that it will cause the user not to purchase the property. The EP promptly notifies the user. The user terminates the Phase I ESA, does not want to pay for any further

effort to complete the project, and does not want or need a report. The EP needs to have documentation and a retention policy for such situations.

Sometimes when the Phase I uncovers a REC without sufficient evidence to determine the impact, the user may want to go directly into a Phase II ESA and combine the two investigations in one report. Most Phase I ESAs are fixed cost projects, and it may be helpful to have an agreement with the user on partial compensation if some issue causes a termination of the Phase I ESA or if the scope has to be expanded before the completion of the report.

Summary

In this chapter, we discussed issues associated with preparation of Phase I ESA reports. We stressed the importance of a scientific approach to evaluation of data and reviewed the concepts of findings, conclusions, opinions, and recommendations. We touched on some of the required elements of E 1527, including additional investigation, data gaps, deviations, and professional statements, and we discussed some of the documentation issues facing the EPs.

References

1. E 1527 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM 2005

2. E 678 *Standard Practice for Evaluation of Technical Data*, ASTM 1984

3. E 620 *Standard Practice for Reporting Opinions of Technical Experts*, ASTM 1985

4. USEPA "All Appropriate Inquiry" Final Rule 40 CFR Part 312—Innocent Landowners, Standards for Conducting All Appropriate Inquiries

PART ONE

Chapter 10

Dealing with the Non-Scope Issues

In this chapter, we will discuss issues related to E 1527 but beyond its scope and several methods the EPs have available for addressing those issues

- **Other Standards**
- **Special user needs**
- **Recommendations**

Other Standards

In many instances, the user may need to conduct an investigation into certain environmental issues that are beyond the scope of E 1527 [1]. These may include radon, lead-based paint, lead in drinking water, asbestos, wetlands, sick buildings, compliance, and air quality issues. Users may realize some cost benefits if the environmental professional (EP) can combine the investigations. One site visit may be sufficient to cover requirements of the related investigations, and some of the other tasks may also be combined to increase the efficiency of the process.

Other standards may apply to ESA issues

Many of the non-scope issues may be regulated by other Standards or other Federal, state or local requirements. For example, the user may need to conduct an asbestos assessment in addition to the Phase I ESA. The state may require that asbestos assessments be performed in accordance with state regulation and a specific Standard. The EP may also have to meet specialized qualification or licensing requirements in order to perform these assessments. The EP should only perform assessments within the EP's qualifications and must be aware of applicable Standards and regulations.

If the issues are going to be included with the E 1527 assessment, the EPs should take care to clearly separate the non-scope investigation in the report. This is often accomplished by using an independent appendix section to address the non-scope portion of the work. The independent appendix section then contains separate scope statements, findings, and conclusion sections. The EPs should not attempt to incorporate or combine multiple out of scope investigations in the main body of the E 1527 report even if they were conducted at the same time. The investigations may require

elements common to both but different in purpose, and combining the issues in the same section of the report will create confusion.

Clearly separate non-scope work from E 1527

Another way to handle the out of scope investigations is to write separate reports, each within the scope of the applicable Standard. This is, by far, the simplest method to achieve clear separation between the tasks, but it may result in some administrative duplication of report sections, such as property description, historical research, or site photographs.

Special User Needs

Phase I ESA can be expanded to meet special needs of the user

In addition to non-scope issues governed by other Standards and regulations discussed above, the user may have special needs that could be resolved during the Phase I ESA. For example, the user may need to find out what environmental issues may arise if after purchase he decides to demolish and remove certain structures. Depending on the EP's expertise, these needs may result in additional business opportunities to expand the scope of work during the Phase I ESA. The Phase I ESA investigation can include special components to collect information needed to meet user needs. When expanding the scope of the Phase I ESA, the EP and the user should take care to clearly identify details of additional services and resolve any contractual issues. The report should sufficiently describe any additional services in a separate section of the report.

Recommendations

Recommend only if asked by client

In Chapter 9 we noted that recommendations are not required by the Standard and that the EP should never include them in the Phase I ESA report unless the contractual agreement specifically requested the EP to do so. Sometimes the users do not realize the implications associated with requesting recommendations in the Phase I ESA report. When the user wants recommendations, the EP should discuss this non-scope issue with the user and explain the potential implications of making recommendations on the outcome of the transaction, including the user's ability to make decisions. The user and the EP should agree on the manner and the medium in which the recommendations will be delivered. The following are some of the common methods used in the industry to deliver recommendations.

Verbal Recommendations

Some users prefer verbal recommendations only. Under some conditions, they direct the EP to deliver the recommendations verbally to their attorney, and they want to be left out of the process completely. The reason behind involving the attorney is to minimize the amount of discoverable information. If the user is sued, the attorney will claim *the attorney client privilege* with respect to what he and the user discussed. However, the discussion between the attorney and the EP is discoverable. For their own protection, the EPs must decide on the method of documentation of verbal

communications between the EP and the client. In verbal recommendations, documentation can potentially be a very sensitive issue. The very reason why the clients want verbal recommendation is that it does not leave a paper trail. In litigation, if the EP made a note in his file that recommendations were given, the entire EP's file, including notes, is discoverable information and could be subpoenaed. If the EPs make recommendations and do not make a record of what they were, they will not have any tangible evidence to prove that recommendations were made and what they were.

Written Recommendations

Verbal recommendations are used to minimize the paper trail of written communications

Written recommendations solve the documentation problems but they create a paper trail, and even if they are submitted as a separate document, they are readily discoverable if litigation arises. Written recommendations are either included in the main body of the report, included as an attachment, or they are submitted separately in the form of a letter. If the EP decides to include recommendations in the main body of the report or in an attachment to the report, the scope section of the report should list this as a *non-scope* issue and describe the contractual items agreed upon with the client. If the written recommendations are submitted in a separate letter form, the scope section of the Phase I ESA of the report does not have to discuss recommendations.

Summary

In this chapter we talked about some of the non-scope issues associated with Phase I ESAs. We pointed out that many issues may be regulated by other Standards and/or agencies. We looked at how tasks that may be user or transaction specific can be combined with, but addressed separately in the report to minimize confusion. We also discussed choices of how recommendations can be provided to the users.

References

1. E 1527 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM 2005

PART ONE

Chapter 11

All Appropriate Inquiry and ASTM Standards

In this chapter, we will revisit the subject of All Appropriate Inquiry and its relationship to the ASTM Environmental Assessment Standards. The topics of this chapter are:

- **All Appropriate Inquiry**
- **Special User Needs**
- **Recommendations**

All Appropriate Inquiry

All appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice

The concept of All Appropriate Inquiry is not new. It is rooted in the Innocent Landowner Defense of the original CERCLA statutes discussed in the previous chapters of this manual The statute states: § 9601 (35)B *To establish that the defendant had no reason to know, as provided (above), the defendant must have undertaken at the time of acquisition all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice*.

Two things are significant about this wording. The first is the concept of all appropriate inquiry. The second is that the inquiry be done in accordance with good commercial practice. The statute is silent on what constitutes good commercial practice. In Chapter 1 of this book we discussed the fact that in the late 1980s there was wide variation in practices and considerable confusion in the marketplace as to what constituted good commercial practice. The initial effort to develop an ASTM Phase I Standard can be traced in large part to the need to have a clear understanding of what constituted standard commercial practice to perform all appropriate inquiry. If the reader were to pick up any of the old versions of ASTM 1527 and read Section 1.1 Purpose, the Standard clearly states that it was developed with a single purpose. That purpose was *to define a practice that constitutes all appropriate inquiry into the previous ownership and uses of the property consistent with good customary commercial practice*.

The initial ASTM Standard development was driven largely by users like developers, bankers, attorneys, and environmental consultants who were performing what has come to be known as a Phase I. Regulators were largely absent from the process. The first version of ASTM 1527 came out in 1993 and soon became a de facto national Standard. But its use was limited to the commercial real estate marketplace. Over time it began to appear in the regu-

latory arena, in some cases by statutory reference and in some cases simply as an environmental document used to provide background information.

On January 11, 2002, President Bush signed the Small Business Liability Relief and Brownfields Revitalization Act (Pub. L. 107–118, 115 Stat. 2356, "the Brownfields Amendments"). The law required the EPA to develop regulations establishing standards and practices for how to conduct all appropriate inquiries. In the Brownfields Amendments language Congress included a list of criteria that the EPA must address in the regulations establishing standards and practices for conducting all appropriate inquiries.

On August 26, 2004, EPA published a notice of proposed rulemaking outlining proposed standards and practices for the conduct of "all appropriate inquiries." This was the regulatory action initiated in response to legislative amendments to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) commonly referred to as the Brownfields Amendments. The final rule was published on November 1, 2005.

EPA used a process in developing the rule that utilized a Federal Advisory Committee (FACA) made up of stakeholders in the rulemaking process

The EPA AAI Rule makes reference to ASTM E 1527-05, which carries the same November 1, 2005 approval date and was published in mid-November 2005. EPA used a process in developing the Rule that utilized a Federal Advisory Committee (FACA) made up of stakeholders in the rulemaking process. When this process was initiated in 2004 it was not clear if the ASTM process would be replaced by the EPA AAI rulemaking process.

As the FACA committee progressed with their rulemaking process, it became apparent that the EPA AAI Rule would work best in conjunction with the ASTM Standard. The ASTM Standard provides more detail than is available in the AAI Rule. While it was theoretically possible for EPA to write a more detailed Rule, it was not certain that the FACA committee would be able to do it, and even if they could, it would have taken substantially more time. For EPA to step in and write a more detailed Rule would also have been very time consuming. The obvious solution was to modify the ASTM Standard to bring it in compliance with AAI.

The ASTM subcommittee responsible for the E 1527 Standards had been working in the time leading up to the finalization of the EPA AAI Rule to revise the ASTM Standard to be consistent with the AAI Final Rule. It is possible to comply with AAI without using the ASTM Standard. This would be done by following the AAI Rule without reference to the ASTM Standard. The level of detail in the AAI Rule is pretty minimal in many sections. Consequently, there is considerable room for interpretation which would lead to variation in the reports based on the preparer's interpretation of the Rule. The lack of detail produces uncertainty and potential liability for both users and preparers. This liability probably increases if the work performed falls short of that required by the ASTM Standard, since it is generally considered standard or good commercial practice.

EPA has prepared several documents which have been included as appendices to this manual. They are the EPA AAI Final Rule (Appendix A), the Common Elements Guide (Appendix B) and the Comparison of the Final All Appropriate Inquiries Standard and the ASTM E 1527 Environmental Site Assessment Standard (Appendix C). These provide additional useful explanation and discussions on issues related to AAI.

The AAI Final Rule includes the preamble and the text of the AAI Rule. The preamble is helpful in understanding the EPA thought process in developing the Final Rule. The Common Elements document is helpful in understanding the requirements beyond AAI necessary to obtain the LLPs. This includes discussion of continuing obligations. The comparison between AAI and ASTM E 1527 is of value in understanding differences between the older (2000) version of the Standard and AAI.

The following section of this chapter is a comparison of the current version of ASTM E 1527-05 and AAI. In several instances representing significant changes some discussion is included relating to the previous version of the ASTM Standard. This discussion and the attached summary are organized in the same way as the ASTM E 1527-05 sections.

Section 1 Scope

This is the section of the Standard which explains the purpose of the Standard and provides the background information for approach. The purpose of the Standard has always been closely tied to CERCLA and defining customary practice for all appropriate inquiry. It is important to understand that this is a narrow purpose that really is designed to provide a defense to CERCLA liability. It was specifically designed to satisfy the general requirements of CERCLA due diligence. This limited purpose concept is not well understood, and most users and many producers of Phase I Environmental Site Assessments view it as a general investigation of hazardous substances that may pose general environmental liability.

The Brownfield Amendment made several significant changes to CERCLA

The Brownfields Amendment made several significant changes to CERCLA, which are reflected in the most recent version of the ASTM Standard. While the innocent landowner defense (ILD) has always been included as a CERCLA liability defense, two new defenses were added. These are the contiguous property owner (CPO) and the bona fide prospective purchaser (BFPP). Together these are referred to as the landowner liability protections (LLPs). The Brownfields Amendment directed EPA to develop criteria for all appropriate inquiry which would be applicable to all persons seeking to establish LLPs.

The Brownfields Amendment was actually an amendment to CERCLA. CERCLA is not applicable to petroleum products. However, the Brownfields Amendment did make specific reference to both petroleum products and controlled substances in the context

of the EPA Brownfields grant program. Petroleum products have always been included in ASTM. This is an instance where the ASTM Standard is more restrictive than AAI, since ASTM always requires assessment of petroleum products, while AAI only requires it when tied to a Brownfields grant.

Controlled substances were included in the Brownfields Amendment to allow the use of grant funds for work on environmental problems primarily caused by methamphetamine (meth) labs. The citation in the statute is to a much larger list of controlled substances. Under AAI controlled substances are included only when tied to a grant. They were not specifically mentioned in earlier versions of the ASTM Standard. The 05 version specifically states that they are not included in the ASTM Standard, but goes on to note that they must be included when conducting work under the EPA Brownfields Assessment and Characterization Grant. Even under a grant, controlled substances only need to be investigated to the extent that they are included in the scope of the assessment investigation and to the extent directed in the grant or cooperative agreement.

One of the important changes brought about by the Brownfields Amendment which is not fully reflected in either AAI or ASTM is that while the Brownfields Amendment expanded the liability protections, it also introduced a much broader concept of continuing obligations. The preamble to the EPA Rule states:

Brownfield Amendment expanded the liability protections and also introduced a much broader concept of continuing obligations

The Brownfields Amendments provide important liability protections for landowners who qualify as contiguous property owners, bona fide prospective purchasers, or innocent landowners. To meet the statutory requirements for any of these landowner liability protections, a landowner must meet certain threshold requirements and satisfy certain continuing obligations. To qualify as a bona fide prospective purchaser, contiguous property owner, or innocent landowner, a person must perform "all appropriate inquiries" on or before the date on which the person acquired the property. Bona fide prospective purchasers and contiguous property owners also must demonstrate that they are not potentially liable or affiliated with any other person that is potentially liable for response costs at the property. In the case of contiguous property owners, the landowner claiming to be a contiguous property owner also must demonstrate that he did not cause, contribute, or consent to any release or threatened release of hazardous substances. To meet the statutory requirements for a bona fide purchaser, a property owner must have acquired a property subsequent to any disposal activities involving hazardous substances at the property.

Continuing obligations required under the statute include complying with land use restrictions and not impeding the effectiveness or integrity of institutional controls; taking "reasonable steps" with respect to hazardous substances affecting a landowner's property to prevent releases; providing cooperation, assistance and access to EPA, a state, or other party conducting response actions or natural

resource restoration at the property; complying with CERCLA information requests and administrative subpoenas; and providing legally required notices. For a more detailed discussion of these threshold and continuing requirements, please see *EPA, Interim Guidance Regarding Criteria Landowners Must Meet in Order to Qualify for Bona Fide Prospective Purchaser, Contiguous Property Owner, or Innocent Landowner Limitations on CERCLA Liability (Common Elements, 2003)*.

A copy of the EPA Interim Guidance is included in Appendix B. It is important for anyone intending to utilize an LLP, especially a BFPP, to understand that doing a Phase I satisfies AAI, but that they also need to meet the continuing obligations.

The user, who may wish to exert an LLP, must be more involved in the Phase I process than they have been in the past

What is reflected in AAI and the current Phase I process is the requirement that the user, who may wish to exert an LLP, must be more involved in the Phase I process than they have been in the past. Prior to the Brownfields Amendment the only defined responsibility the user had was to explain the reason for any low price. In other words, consider that a low purchase price may be associated with contamination. The statutes directing EPA to develop an AAI Rule include language that requires actions of the user and environmental professional. Much of this basic language has always been a part of CERCLA, but the Brownfields Amendment makes it clear that just hiring an environmental professional and documentation of the reasons for any low purchase price is not adequate participation. A more detailed discussion of this participation can be found in the Appendix X-3 of E 1527-05, which is a User Questionnaire.

The preamble to the rule states:

The regulations established today only address the all appropriate inquiries provisions of CERCLA sections 101(35)(B)(i)(I) and 101(35)(B)(ii) and (iii). Today's rule does not address the requirements of CERCLA Section 101(35)(B)(i)(II) for what constitutes "reasonable steps."

The Brownfields Amendments amend CERCLA by providing funds to assess and clean up Brownfields sites, clarifying CERCLA liability provisions for certain landowners, and providing funding to enhance state and tribal cleanup programs. The intent of today's rule is to finalize regulations setting federal standards and practices for the conduct of all appropriate inquiries, a key provision of the Brownfields Amendments. Subtitle B of Title II of the Brownfields Amendments revises CERCLA section 101(35), clarifying the requirements necessary to establish the innocent landowner defense. In addition, the Brownfields Amendments add protections from CERCLA liability for bona fide prospective purchasers and contiguous property owners who meet certain statutory requirements.

Each of the CERCLA liability provisions for innocent landowners, bona fide prospective purchasers, and contiguous property owners, requires that, among other requirements, persons claiming the li-

ability protections conduct all appropriate inquiries into prior ownership and use of a property prior to or on the date a person acquires a property.

Section 2 Referenced Documents

There is no direct relationship between this section and AAI. As was previously noted, AAI indicates that ASTM E 1527-05 complies with the requirements of AAI. It also provides that there would be a one year phase out of the previously approved ASTM E 1527-00. This document could have been used until November 1, 2006. The ASTM E 1527-97 which is cited in the initial statute as meeting the requirements of AAI was not mentioned and should not have been used after November 1, 2005.

In ASTM E 1527-05 revision of the Standard all of the references to the Transaction Screen Standard were removed from the main body of the document but the Transaction Screen Standard is listed as a reference document

In ASTM E 1527-05 revision of the Standard all of the references to the Transaction Screen Standard (E 1528) were removed from the main body of the document, but the Transaction Screen Standard is listed as a reference document. Since it is not mentioned by EPA in the Rule, it should not be used to satisfy AAI. Section 2 was expanded to include some additional reference documents and does include the AAI Final Rule as one of the added references.

Section 3 Terminology

The EPA Rule includes eight (8) defined terms. Six of these terms and definitions are included in the ASTM terminology section. These include: abandoned property, adjoining property, data gap, environmental professional, good faith, and institutional controls. The other two terms are relevant experience and date of acquisition or purchase date. While not specifically included as terminology, they are included in the text of ASTM.

Under ASTM convention, the defined terms are italicized in the actual text of the standard document to indicate that they are defined or described in the terminology section.

In all earlier versions of E 1527 there were two lists of terms. One was called *definitions* and contained 44 terms. One was called *description of terms specific to this Standard* and contained 40 terms. In the latest revision all the terms were combined in one list termed *definitions*. There are 97 defined terms in ASTM E 1527-05. The section also includes a slightly modified list of acronyms. These typically appear in the document as all caps but are not italicized.

When EPA defines a term, it is part of the public domain and anyone is free to use that same language

When EPA defines a term, it is part of the public domain and anyone is free to use that same language. Those EPA terms often end up word for word in other documents like the ASTM Standard. However, the reverse is not true. ASTM Standards are copyrighted and the Standard specific language cannot be cited without proper reference as to its origin.

As a consequence, the reader will find EPA (and other) defined terms used in the ASTM Standard but will not find ASTM terminology used in AAI. This became a problem when EPA and the

Federal Advisory Committee were drafting the EPA AAI Rules, since, of necessity, they were using many similar concepts.

ASTM has always used the concept of Recognized Environmental Condition (REC). This term is defined in part as "the presence or likely presence of any hazardous substance or petroleum products on a property which indicates an existing release, a past release or material threat of a future release…" AAI which is defined in the EPA Rule did not use ASTM specific language because of copyright issues. Instead of the language used by ASTM to define a REC, the EPA Rule uses the language "identification of conditions indicative of releases and threatened releases of hazardous substances…" Similar rewording can be found in a side-by-side comparison of ASTM and AAI. It is not an attempt to convey some subtle difference in meaning. On the contrary, it is an attempt to convey the same concepts without infringing on copyrights.

Section 4 Significance and Use

From the perspective of the user this section underwent a significant change in the time that a report can be used from the date it was prepared. One concept remained essentially the same, namely, the fact that a report can be assumed to be valid for up to 180 days. The one exception is if you know the report to be wrong. AAI and the new ASTM Standard are more specific as to when the 180 days is applicable in that they both specifically state that it is 180 days prior to the date of acquisition. If the property is not being acquired, as in a refinance or lease, then it is the date of the transaction. The older versions of ASTM simply made reference to the fact that if it was completed less than 180 days previously, it is presumed valid. This has the potential to be a problem if the transaction is delayed or extended. Such extensions are common in commercial real estate transactions due to contingencies associated with multiple funding sources, time for due diligence, permits or other land use approvals. An example might be a loan package that was approved on the basis of a 160-day-old report, but the closing is delayed 30 days by some unrelated issue. The user would have to have an updated report to satisfy the requirements of AAI.

One other distinction is that the dates referenced are from the time of the activity, not the date of the report. For example, the interview, data search, site visit start the clock on the 180 days or one year time period allowed. This may have minimal impact on jobs with short turn around time but can be significant if the work is performed substantially before the report is finalized. This requirement makes it important to document when the work was actually performed.

After 180 days the report must be updated, which includes redoing most of the report. The historical research can be used, but the preparer/user must update interviews, lien search, records review, and the site visit, and must provide a new EP declaration. There appear to be some savings in doing an update over a new report,

but they are minimal, especially if another EP is preparing the update. A new EP is typically reluctant to accept the previous work without some independent verification.

Under the old Standard the user was required to review the report if it was older than 180 days, and determine if it was still viable. The test was that the old report met or exceeded the ASTM Standard and that the environmental conditions had not changed materially since the report was prepared. If the report met these criteria, it could be used. There was no expiration date for a user to consider. If it did not meet the criteria, then an update was required that included a new site reconnaissance, interviews and records review. The other information from the old report could be used.

Under the new ASTM Standard and AAI any report over one year old must be redone

Under the new ASTM Standard and AAI any report over one (1) year old must be redone. The Standard does allow the use of information from prior reports that meet or exceed the Standard, but goes on to require that the information shall not be used without current investigation of conditions likely to affect Recognized Environmental Conditions in connection with the property.

The distinction under the current Standard is that between 180 days and one year you may update a report, and after that you must prepare a new report. As a practical matter, the difference between the update and preparing a new report is minimal in terms of time and effort. In both cases the work that can be used without being redone is limited to the historical research and general site description.

Section 5 Activities and Use Limitations

This is an entirely new section added to the ASTM E 1527-05 version. AAI has no similar language which is directly comparable. AAI has no specific use of the term AULs but does specifically mention searching records for Recorded Environmental Cleanup liens. In the discussion on records review it specifically mentions: Registries or publicly available lists of engineering controls; and Registries or publicly available lists of institutional controls, including environmental land use restrictions.

The Brownfields Amendment and AAI, while not using the specific term AUL, are very clear in saying that AUL type documents, recorded liens, land use restrictions, and the like should be investigated. The language tends to assign this responsibility to the user and to the EP without clear differentiation of responsibilities.

AULs have taken on added importance for the user, especially a BFPP defense, because they contain information on potential continuing obligations. Those continuing obligations are necessary to maintain the LLPs. The presence of an AUL is usually evidence of a past REC in association with the property.

The AUL discussion is further complicated by the fact that there is no consistent use of terms by ASTM, EPA, or other agencies and

organizations. Part of the purpose of this section in the Standard is to explain this lack of agreement on the nomenclature surrounding AULs. The balance of the discussion is to point out where one can look to find these documents. The principal purpose of this new section is to alert the user and EP to the issues associated with AULs. This is an evolving area of the practice, and the Phase I process needs to incorporate the AUL information even though there are a number of unresolved issues about locating such instruments. Over time it is likely that both state and Federal systems will evolve for documenting and tracking AULs which will facilitate compliance.

Section 6 User Responsibilities

The Statute and AAI Rule is very specific about responsibilities but is not very specific about whether the user or the EP is responsible. In performance of AAI both the user and the EP have responsibilities. The joint initial responsibilities include:

1. Identifying Environmental Cleanup liens
2. Identifying AULs
3. Documenting Specialized Knowledge
4. Assessing purchase price relative to fair market value
5. Documenting commonly known or reasonably ascertainable information
6. Documenting the degree of obviousness and the ability to inspect by investigation

The only one of these for which the user is generally totally responsible is assessing purchase price relative to fair market value. This is not new and has always been a part of the CERCLA language. If the users bought it cheap, then they should have an answer to the question: Was it because the land was contaminated? This has little actual application, but in those situations where the buyer knows that the price is below market value, they need to document the reason.

Question 4 of the Appendix 3 Questionnaire in E 1527-05 is designed to address the question of the purchase price. In the context of the original Innocent Landowners Defense, a user could lose the defense if they knew or should have known that the reason why they were getting such a good deal was that the land was contaminated. In the context of the Bona Fide Prospective Purchaser defense, the user can buy with knowledge. A yes answer to the question would simply trigger the EP to inquire further about the contamination that resulted in a lower purchase price.

An anecdotal observation is that over time the variation in price due to known or suspected contamination has narrowed. The risk premium is decreasing as the cost of addressing residual contamination is better defined. The increase in risk based closure alternatives has also reduced the cost associated with corrective action.

With increasing Brownfields activity and available grant funding the discount attributable to contamination will be a less reliable indicator of contamination.

The other five questions are also covered in the E 1527-05 Standard's Appendix X-3 *Questionnaire*. The ASTM questionnaire indicates that the user must provide this information to the EP. This was consistent with the language in the draft Rule. However, in response to comments on the Draft rule EPA changed the language in the final Rule to say that the user "should" provide the information and that if they didn't provide it, the EP would evaluate the impact of the lack of information and may consider it a Data Gap. This does not waive the responsibility of the user to assess the information, just the need to provide it to the EP. The most likely reason to withhold information would be something associated with trade secrets or confidential information. ASTM did not change the wording, and the Appendix X-3 says that the information must be provided.

In many commercial property transfers the buyer will have little of the information requested in Appendix X-3 (other than sale price) that is not already available to the EP. The exception might be industrial properties that involve esoteric uses of chemicals not generally known outside the industry.

One of the significant changes brought about by the Brownfields Amendment was the increased requirements placed on the persons wanting to utilize any of the LLPs. Prior to the Brownfields Amendment most people relied on the Phase I prepared by the EP and, if appropriate, they had to address a low purchase price. As discussed above, a user now needs to document that they participated in the AAI process. This participation can be documented by using the Appendix X-3 of the ASTM Standard. That does not end their requirements. The statute has continuing obligations primarily associated with minimizing future impact of any contamination. These requirements are explained in detail in the EPA document referred to as the Common Elements Guidelines, which is included in Appendix B. These requirements generally apply after the transaction and are not specifically addressed in either AAI or the ASTM Standard.

Section 7 Phase I Environmental Site Assessment

This is a short section which provides an overview of the Phase I process. There are no substantive changes in the description of the doing piece of the Standard. There is some modification to include language changes for consistency with AAI. These will be discussed in detail in later sections and include things like including interviews with past owners and reporting on user provided information.

The most significant change is in the description of the Environmental Professionals' duties. Both AAI and the ASTM Standard

required the EP to be in responsible charge of the work. This is consistent with the language in AAI. Under the concept of responsible charge the EP may delegate various tasks. ASTM is more stringent than AAI in that it goes on to require that the interviews and site visit be done by someone who essentially meets the old ASTM definition of an EP, i.e., they have the "ability to identify issues relevant to a REC." In theory, under AAI the EP in responsible charge could assign anyone to do the interviews and site visit. The ASTM Standard was not changed, because it was felt that it needed to be clear that the persons doing those specific tasks had to have sufficient training and experience.

AAI indicates that the inquiry of the environmental professional must include:

1. interviews with past and present owners
2. reviews of historical sources
3. reviews of government records
4. visual inspections
5. commonly known or reasonably ascertainable information
6. degree of obviousness of the presence
7. ability to detect the contamination

In addition, the inquiry should take into account information provided to the environmental professional as a result of the additional inquiries conducted by users.

Items one through four are clearly taken from the ASTM practice. The final three are from the general CERCLA guidance. These last three items are not specifically addressed in sections of the ASTM Standard. However, it is clearly the intent, both historically and currently, to satisfy these "tests." The ASTM Standard provides the detail on how to check records, do a site walk and conduct interviews to obtain this type of information.

Section 8 Records Review

Records review has always been part of the ASTM process. It consists of two basic types of information. The first is the environmental information, consisting primarily of environmental records. Most of this information is typically obtained from a commercial database search company. These companies maintain the records on a GIS type database and provide a summary report and maps with identified sites for a fee. EPs can obtain the information directly from the government record sources or online but usually use a commercial database company. The commercial sources provide the specified records and frequently provide records from other databases as well that are not specified in the ASTM Standard.

Other information included in the environmental records is the physical setting information. This requires consulting a current *USGS 7.5 Minute Topographic Map*. If migration is likely, addi-

tional sources need to be checked. These physical setting provisions have not changed from earlier versions of the Standard.

The second type of records review is the Historical Use Information. This is obtained by checking various historical sources which typically can be found at a library. Some of these records can also be obtained from commercial database firms. This section is little changed from earlier versions of the Standard.

Section 312.26 of the AAI Rule lists specific environmental records to be checked. The organization is different from ASTM in that the Rule lists records for the subject property and then lists records for nearby or adjoining properties with search distances. These same records are incorporated in the ASTM Standard in a different format.

The AAI Rule provides some general guidance on how the historical records search may be modified. The search distance from the subject property boundary for reviewing government records or databases of government records listed may be modified on the basis of the professional judgment of the environmental professional. The rationale for such modifications must be documented by the environmental professional. The environmental professional may consider one or more of the following factors in determining an alternative appropriate search distance:

1. The nature and extent of a release;
2. Geologic, hydrogeologic, or topographic conditions of the subject property and surrounding environment;
3. Land use or development densities;
4. The property type;
5. Existing or past uses of surrounding properties;
6. Potential migration pathways (e.g., groundwater flow direction, prevalent wind direction); or
7. Other relevant factors.

The ASTM has always contained language indicating that the EP may reduce search distances, and it was modified to conform more closely to AAI language. Specified search distances are rarely reduced in practice.

There were a number of changes in the list of databases. Four new databases were added. They are:

1. Federal Intuitional Control/Engineering Control Registries
2. State and Local Intuitional Control/Engineering Control Registries
3. State and Tribal Voluntary Cleanup sites
4. State and Tribal Brownfields sites

One point of confusion is the search distance for intuitional controls and engineering controls

In addition, the term *or tribal* was added to all of the sites that had formally been State list.

One point of confusion is the search distance for intuitional controls and engineering controls. The draft Rule included a requirement to search nearby and adjoining properties. This was changed in the final Rule. The preamble of the final Rule clearly states that: *The final Rule requires that government records and available list for intuitional and engineering controls be searched only for information on such controls at the subject property*. AAI Section 312.26 (b) (7) states: *Registries of publicly available list of intuitional controls, including environmental land use restrictions, applicable to the subject property*. This language is entirely consistent with the previously cited preamble discussion. The problem arises when later in AAI 312.26 (c) (2) (ii) it says: *Registries or publicly available list of engineering controls (one-half mile)*. This appears to be an oversight in the editing, since such a statement is clearly inconsistent with other language in the AAI final Rule and contrary to the discussion in the preamble. Some people have taken a conservative approach and decided to search for one-half mile for engineering controls.

There is language in AAI that can be interpreted broadly to imply that additional records beyond those specifically named are to be checked. This language is somewhat qualified by the new ASTM language which indicates that such a check is left to the judgment of the EP. The judgment factors are similar to those used in previous versions of the Standard and include "reasonably ascertainable," "useful" and "generally obtained." The language changes are subtle, but the word "may" was changed to "shall," and this implies more of a requirement of the part of the EP to address the issue of additional local records.

The Physical Settings Source Section was not changed. There was no change in the historical records to be searched, but the discussion on data failure was expanded significantly. ASTM retained the requirement that obvious uses of the property back to 1940 or the earliest development, whichever is earlier, be obtained. AAI simply requires property history back to the original development. Under AAI, a property developed in 1995 would only have to be researched back to 1995. Under ASTM it would have to go back to 1940. For properties developed prior to 1940 there would be no difference.

The concept of data failure has always been incorporated into the ASTM Standard

The concept of data failure has always been incorporated into the ASTM Standard. Data failure applies only to historical records search. The concept was originally included to account for the fact that for properties with a long history of development it would not be possible to document all historical uses, because the records did not exist. The concept was to note that you had data failure but the search was complete.

AAI introduces a concept of data gaps which applies to any of the required tasks under the standard. A data failure is an example of a

data gap. The importance of data gaps has to be evaluated and discussed if they are significant. AAI does not specifically address data failure as a term but would include it as a data gap. There is a more extensive discussion of data gaps in the section on reporting.

Section 9 Site Reconnaissance

There are only minor editorial changes in this section from earlier versions. The language that makes specific reference to activities of the EP was struck, because the Standard now only requires the EP to be in responsible charge.

In situations like condemnation or extremely remote locations where access wasn't available you could meet AAI without entering the property

The AAI Rule contains language that says an inspection must be conducted but goes on to allow that: *In the unusual circumstance where an on-site visual inspection of the subject property cannot be performed because of physical limitations, remote and inaccessible location, or other inability to obtain access to the property, provided good faith efforts have been taken to obtain such access, an on-site inspection will not be required*. This language was specifically included in AAI to make it clear that in situations like condemnation or extremely remote locations where access wasn't available you could meet AAI without entering the property.

ASTM includes no such specific waiver language, in part because it is a very rare occurrence and in part because it could easily be misconstrued to imply that site visits were optional. In those rare instances where a physical inspection could not be performed, it would be discussed as a limitation in the ASTM process. Limitations are generally imposed by others and could result from an adversarial relationship between buyer and seller or something like security clearance requirements. In a rare circumstance it could be a deviation from the Standard by the EP. An example might be a decision not to enter a condemned building for safety concerns. In either case, the reason for the limitation or deviation would be explained. Under ASTM E 1527-05 either variation of the deviations would be a data gap.

Section 10 Interviews with Past and Present Owners

The Brownfields Statute and AAI contain language that speaks of interviews with past and present owners. The final AAI Rule says: *The inquiry of the environmental professional also must include, to the extent necessary to achieve the objectives and performance factors, interviewing one or more of the following persons:*

(1) *Current and past facility managers with relevant knowledge of uses and physical characteristics of the property;*
(2) *Past owners, occupants, or operators of the subject property; or*
(3) *Employees of current and past occupants of the subject property.*

This inclusion of past owners is a significant change in emphasis. Previous ASTM language talked about owners and occupants. The context made it clear that you were trying to identify someone with knowledge of the property, but it made no specific mention of past owners and operators. In unusual circumstances EPs might try to locate a past owner or occupant, but they did consider it as a matter of standard practice.

Part of the reason is that they can be difficult to identify and locate, and in many cases past owners or occupants may not provide additional useful information. For this reason ASTM included qualifying language that says past owners and occupants likely to have material information need to be interviewed to the extent that they have been identified and are likely to provide information that is not duplicative of information obtained from other sources. This is much narrower language than that found in AAI, but still imposes a responsibility on the EP to consider interviews with past owners and occupants as may be appropriate.

New language was included which speaks to the subject of abandoned properties

New language was included which speaks to the subject of abandoned properties. AAI specifically required interviews with neighbors when the property is abandoned, and there is evidence of unauthorized use or uncontrolled access. Similar language was incorporated into ASTM.

The last part of this section deals with helpful documents. Similar language has always been included in the previous versions of the Standard. The intent has always been to obtain any documents that the user might have which would be of help to the EP. This section is included in the site visit, because it is the intent to have these documents for review prior to the site visit. There were some minor changes in wording, and underground injection systems and risk assessments were added. Those changes were unrelated to AAI. Recorded AULs was added, because of the emphasis placed on AULs in AAI.

While there is very little change in the language of this section, the change is associated with the Brownfields Statute and AAI emphasis on the user participation in the process. AAI does not use the specific term “helpful documents” but does make clear reference to specialized knowledge and commonly known information of the type contained in ASTM helpful documents. As such, it is important for the EP to clearly ask for the information and to document the response to the inquiry. All of these items are not specifically addressed in the questions in the User Questionnaire Appendix X-3. There are references to helpful documents, other knowledge and experience, including copies of some of the listed documents. This is another place where the clear intent of AAI and ASTM is to involve the user in the process.

Section 11 Interviews with State and/or Local Governments

Consider checking with building or groundwater permit agencies, since these may be indicative of an AUL

In the section of AAI which talks about commonly known or reasonably obtainable information there is a list of things the EP may refer to. One of those is local and state government officials who may have knowledge of, or information related to, the subject property. There is very little change in the actual language of this section. The significant change is the inclusion of state officials. Previous ASTM versions only made reference to local officials. In all cases *state and/or local* language was added.

The only other change was the inclusion of a sentence to consider checking with building or groundwater permit agencies, since these may be indicative of an AUL.

Section 12 Evaluation and Report Preparation

There were significant changes to this section to comply with AAI. Additional changes were made for clarification in the Findings and Opinion Section.

The Contents of the Report Section was modified to require identification of the persons who performed the site reconnaissance and interviews. This is related to the ASTM requirement that while these persons do not have to be EPs, they must be able to identify issues associated with a REC. Since the ASTM Standard is more specific than AAI, this simply puts the EPs on notice that they need to consider who they have assigned to perform the site visit and interviews.

The Opinions discussion was modified for clarity. The concept is the same as the earlier version, but language was added to make it clearer that opinions including the logic of the EP for determining why something is or is not a REC are required. This is more stringent than the AAI language, which could be interpreted to mean that only RECs need to be discussed.

In the AAI Rule, the section on the degree of obviousness of the contamination states that *the environmental professionals conducting an inquiry of a property on behalf of such persons must take into account the information collected under § 312.23 through 312.30 in considering the ability to detect contamination by appropriate investigation. The inquiry of the environmental professional should include an opinion regarding additional appropriate investigation, if any*.

The preamble suggests likely places where this additional investigation may be appropriate. These include:

- Situations where you have a user wanting a BFPP and where additional investigation would determine whether a site had an

ongoing release which would have to be stopped to meet the BFPP continuing obligations.
- A second example was a situation where additional sampling could be used to address an identified significant data gap.

Additional Investigation This is a section subject to wide interpretation

In order to comply with this language, ASTM included a section called *Additional Investigation*. This is a section subject to wide interpretation and probably the most problematic in the Standard. ASTM attempted to place some boundary conditions to limit the scope. It should be understood that the CERCLA requirements have always contained language about the ability to detect by appropriate investigation. This language is not new. It can be traced back to original CERCLA language related to factors that the court would consider in determining whether appropriate inquiry had been conducted.

What is clear from the preamble to the AAI Rule is that EPA did not intend to make major changes to the way Phase I work is conducted, and they do not intend to require recommendations for Phase II work in this language. Taking this preamble language at face value, this additional investigation is for a situation different from a traditional Phase II scenario that would involve an opinion on additional investigation.

The ASTM language places some further conditions that this opinion should be provided in: *unusual circumstances when greater certainty is required regarding the REC*. The best way to look at the certainty issue is to ask the question: Is my future action going to change, based on the results of the opinion? The discussion goes on to say that it is not recommendations for Phase II or other assessment activities. It also further qualifies the opinion by saying that it is an opinion regarding appropriate investigation, if any. The best guidance that can be given on following the ASTM language is that an opinion on additional appropriate investigation is to be included when you have all of the following (unusual circumstances):

- The EP in fact has a recommendation to suggest (if any)
- The EP has a REC on the property
- The EP has circumstance when greater certainty is needed

One reasonable interpretation would be the type of examples given in the EPA Preamble to the Rule. Assume that the question involved a REC and one needed greater certainty regarding the REC. An example of additional appropriate investigation in the case of the tank leak scenario might be to run a tank test. In the case of the data gap, you might have undocumented debris on the site that might contain hazardous materials, but you cannot see it well and couldn't find anyone to interview or other records that indicated content, so you had to call it a REC. The appropriate investigation might be to open up the piles of debris with a backhoe to see what is inside. Another example might be a data gap associated with a site visit, because the key to the machine shop building was un-

available, so it could not be viewed. The EP believed that the data gap (incomplete site visit) was significant, and because a release was likely determined that a REC existed. An obvious opinion on additional investigation would be to get access to the building.

The AAI Rule contains language that indicates: *to the extent there are data gaps in the information developed as part of the inquiries affect the ability of persons (including the environmental professional) conducting the all appropriate inquiries to identify conditions indicative of releases or threatened releases in each area of inquiry under each standard and practice such persons should identify such data gaps, identify the sources of information consulted to address such data gaps, and comment upon the significance of such data gaps*. An entirely new discussion was added to the ASTM Standard to explain how to deal with Data Gaps. The problem with the AAI language is that the EP can be placed in a situation where they must discuss the significance of something they don't know. ASTM qualified the data gap discussion. The key point is that comment is only needed for significant data gaps which affect the ability to identify RECs. ASTM goes on to state that a data gap is only significant if other information and/or professional experience raises reasonable concern. There has to be some other indication from the other information collected that the data gap is a problem. If the EPs have a significant data gap, they need to identify it; list sources consulted to resolve it; and comment on its significance.

The AAI language includes a comment that sampling and analysis may be conducted to develop information on data gaps. Sampling is not specifically addressed in the ASTM section on data gaps but can reasonably be assumed to be covered in the additional investigation discussion. It is not the intent that any sampling be incorporated into the Phase I Standard. The ASTM discussion on additional appropriate investigation includes language that says that even in the case where an opinion is provided it does not render the assessment incomplete.

The past versions of ASTM E 1527 contained requirements for specific language as it related to RECs. This language is retained. In addition, there is specific language incorporated into AAI which is now included as part of a Professional Qualifications Statement. This language is:

"[I, We] declare that, to the best of [my, our] professional knowledge and belief, [I, we] meet the definition of Environmental Professional as defined in § 312.10 of this part."

"[I, We] have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. [I, We] have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312."

The final requirement is that the appendix includes the qualifications of the EP and the person conducting the site reconnaissance and interviews if it was someone other than the EP.

Section 13 Non-Scope Issues

The preamble to the AAI Rule discusses the fact that there are continuing obligations required to exert the LLPs. These requirements are beyond AAI and ASTM E 1527, and for the most part begin after acquisition of the property. Additional language is included in this section pointing out that to qualify for LLPs the user may have to comply with AULs and that a determination of compliance is beyond the scope of the Phase I.

There were minor changes to the list of additional issues, including the deletion of high-voltage power lines and the addition of biological agents and mold. These items are not discussed as part of AAI.

Appendix X-1 Legal Background

This section was completely rewritten to reflect the Brownfields Amendment to CERCLA and current case law. Prior to the 2005 revision the Legal Appendix had not been revised since the original 1993 version of ASTM E 1527.

Appendix X-2 Definition of EP

The EPA AAI Rule definition of an EP and the term "relevant experience" which is taken directly from Section 312.10

This is the EPA AAI Rule definition of an EP and the term "relevant experience" which is taken directly from 40 CFR 312.10. This is the section that drew the most comment when published as a draft Rule. This section should be consulted for the specific language, but briefly there are four alternative ways to qualify as an EP:

- Professional Engineer or Professional Geologist registration and three years of relevant experience
- Licensed by state or tribe and three years of relevant experience
- Baccalaureate or higher degree in Science or Engineering and five years of relevant experience
- Ten years of experience

The final ten year requirement was changed in the final Rule from the language in the draft Rule. In the draft Rule it was a grandfather clause that required the experience at the time the final Rule was signed and had an additional requirement of a Baccalaureate degree in any subject. It would have prevented anyone from qualifying in the future as an EP unless they met one of the first three requirements.

Relevant experience is also defined:

as used in the definition of environmental professional in this section, means: participation in the performance of all appropriate

inquiries investigations, environmental site assessments, or other site investigations that may include environmental analyses, investigations, and remediation which involve the understanding of surface and subsurface environmental conditions and the processes used to evaluate these conditions and for which professional judgment was used to develop opinions regarding conditions indicative of releases or threatened releases (see § 312.1(c)) to the subject property.

One issue to consider is that the EPA definition requires full time relevant experience in order to qualify as an EP. As defined above, that experience can be obtained in a number of ways besides performing Phase I work. Since the qualifications are so specifically defined, persons performing work and stating that they meet the qualifications of an EP need to evaluate their qualifying experience. Some environmental experience that involves such things as NEPA work, permits, or asbestos assessment could be challenged as meeting the relevant experience definition. If the qualifying experience is not full time, additional years of experience would be required to satisfy the stated experience.

Appendix X-3 User Questionnaire

The use of this form is voluntary. It is necessary for the user to document this information as part of a future LLP defense. This is provided to assist users in complying with AAI, which imposes responsibilities on them to participate in the process. The ASTM version says that user *must* provide. The final AAI Rule changed the language to say that the user *should* provide this information, but it is not required. It then goes on to say that if the EP does not receive the information, they should treat it as a data gap.

The first part of the questionnaire consists of six questions to be answered by the user. The second part is a list of additional information designed to help the EP in conducting the Phase I but not specific requirements to qualify for one of the LLPs.

Under AAI all users need to satisfy the AAI requirements summarized in the first six questions

One of the dilemmas this creates for the EP can be found in this additional information which, among other things, requests the user to identify all parties that will rely on the Phase I report. Normally, the EP has a single client who is one of the potential users. Under AAI all users need to satisfy the AAI requirements summarized in the first six questions of this Questionnaire. The EP will have to decide what their policy is to provide the questionnaire and collect information from any other users that the client may identify.

Appendix X-4 Recommended Format

This is a non-mandatory format for the Report which generally follows the ASTM Standard format. It is very similar to previous versions, with modifications to incorporate information required by AAI. There is no specific format required by AAI.

PART TWO

PHASE II ENVIRONMENTAL SITE ASSESSMENT PROCESS

PART TWO

Chapter 1

Scope of Phase II Environmental Site Assessment

In this chapter, we introduce the Phase II Environmental Site Assessment and discuss issues related to:

- **Introduction to Phase II ESA**
- **Scope of E 1903**
- **Objectives of E 1903**
- **Users' needs**
- **Limitations**

Introduction to Phase II ESA

Standard Practice versus Standard Guide

In Part One of this manual, we concentrated on performing Phase I Environmental Site Assessments (ESAs) in accordance with ASTM E 1527 [1]. Part Two of this manual focuses on some of the key aspects associated with performing the Phase II Environmental Site Assessments (Phase II ESAs) in accordance with ASTM E 1903 [2]. As of the writing of this manual the ASTM task group was in the process of negotiating the necessary revisions that were needed to make the Standard consistent with the changes that took place in the Phase I Standard. Two main approaches to revising the Phase II Standard were under consideration. The 1997 version of the Phase II Standard allows great flexibility enabling the user and the environmental professional to design the process to meet the needs of the user. Some task group members suggested changes to make the Phase II Standard more prescriptive. This approach would simplify some of the decision-making process but could adversely impact the level of professional judgment, and thus potentially detract from the value and diverse applicability of the Phase II process. It is likely that the Phase II standard will be revised to describe the scientific methods and practices appropriate for various types of investigation that typically occur after a Phase I but before regulatory involvement. Most states have specific requirements for site assessment once contamination is identified and reported. The Phase II standard may address those situations when assessment activity is necessary but there is insufficient information to require involvement of a regulatory agency. Such activities can be related to business decisions (is the contamination present

or not, big problem or little problem, does it leave the site) or LLP defenses (identify continuing obligations, reasonable steps, or confirm a REC). The scientific method described in the current Phase II standard is not likely ot undergo significant change, however the actual document could be substantially revised. The EPs should monitor the development of the Standards, and whenever applicable modify their procedures when strict conformance to the latest version of the Standards is desired or mandated.

Although the two Standards are related, the environmental professional (EP) needs to be aware of the fundamental differences between them. E 1527 is a *Standard Practice,* and as such it provides the parties involved with a definitive set of instructions for performing a specific set of tasks. The EP strives to complete the required tasks, and in this manner meets the standard practice. Both the EP and the user have a defined set of responsibilities, and how they were fulfilled must be disclosed in the Phase I ESA report.

In contrast, E 1903 is a *Standard Guide*. It is a compendium of information, which identifies many options and allows the parties considerably more leeway in the scope issues. ASTM Standard Guides do not require a specific course of action, and the EP must determine the appropriate course of action that will meet the goals established with the client. One option being considered by the task group revising this Standards is to make the Phase II Standard into a standard practice. This will limit the current flexibility and the environmental professional will have to include mandatory steps of the practice. In fact, as we will learn further in this manual, submitting a written report is currently not required by the E 1903 Standard Guide. A report will be submitted only if the user requests it. We will learn that user needs play an important role in Phase II ESAs and should drive the process. The advent of the Brownfields Amendment, the subsequent EPA Rule, and the 2005 revisions of the Phase I Standard provided yet a number of new applications for the Phase II process. Brownfields are about redevelopment and reuse of previously developed and potentially contaminated properties. The Phase II investigations can be and often are designed to assist users with redevelopment decisions. The Phase II assessment may also be a useful tool in the case of Bona Fide Prospective Purchaser (BFPP). In this situation the Phase II assessment may not be limited to identifying contamination but used for an investigation into the actions necessary to meet the user obligations under AAI. Typically, the investigations associated with BFPP tend to be designed to identify as much historical contamination as feasible, so that the new owner can minimize the potential of being responsible for contamination that they did not cause.

Comparing the Scope Sections of the two Standards, we begin to understand that, in general, the Phase II ESA is a focused continuation of a Phase I ESA. Under some circumstances the guiding principles of the Phase II Standard can be used in situations where data gaps exist, and the users wish to conduct additional investiga-

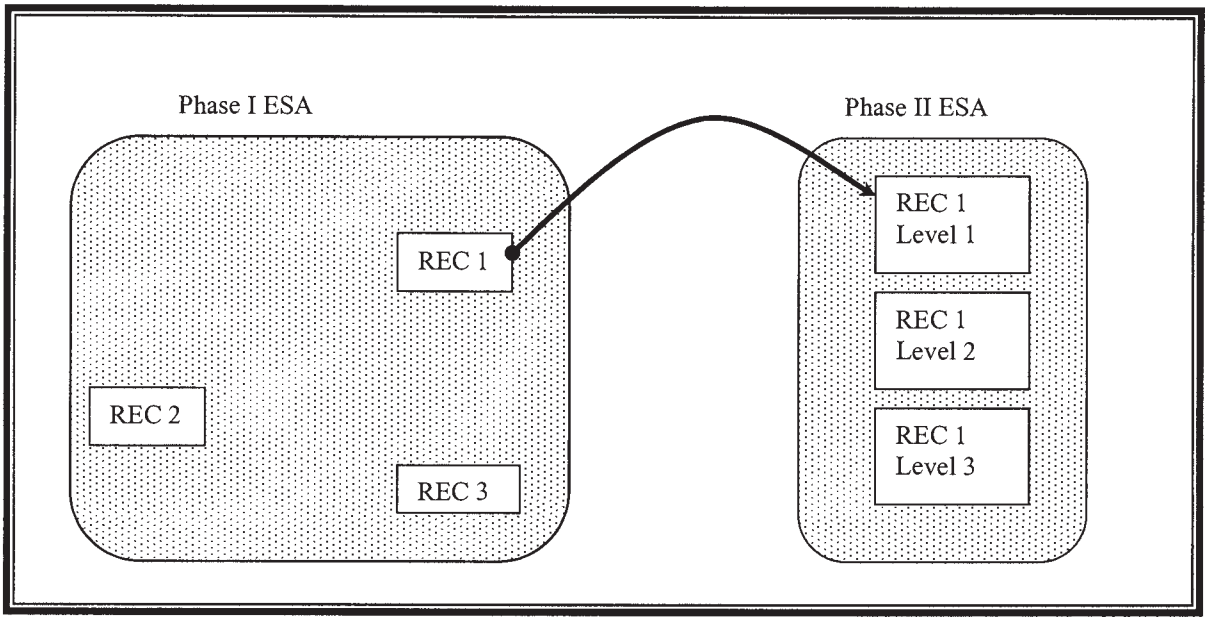

Figure 1.1 Progression from Phase I ESA to Phase II ESA.

tion in order to resolve these data gaps. In this manner the Phase II result may end up being incorporated into the Phase I report. Typically, the Phase I provided a general picture of the property, identifying recognized environmental conditions (RECs) associated with the property. Phase II continues the process by selecting and focusing on a small portion of that picture in detail (i.e., a single REC). There can be a number of focal points (RECs) and/or multiple focal levels (Phase II iterations). Figure 1.1 demonstrates the concept.

In Figure 1.1, the shaded area on the left represents a Phase I ESA, which among other things identified three different and unrelated RECs. The user decided to select REC 1 for further analysis. He discussed the investigation with the EP, and the EP suggested three levels of Phase II ESA investigation. At each level the EP and the user agreed to review the results, and the user would then decide whether to proceed to the next level. The user's decision to select one REC and conduct a three-level inquiry constitutes an important scoping element of the Phase II ESAs. In order to be able to assist the user in the development of the Phase II ESA scope of work that complies with the ASTM Standard and meets the user's needs, the EP must develop a thorough understanding of the scope issues of E 1903.

Figure 1.2 depicts a conceptual representation of the relationship of the Standards, the tasks, and the conceptual site model thinking process. The process builds as new information becomes available, and leads to multiple reiterations of the conceptual site model. The conceptual site model begins with the Phase I assessment. As the assessment process proceeds the reiterations of the conceptual site

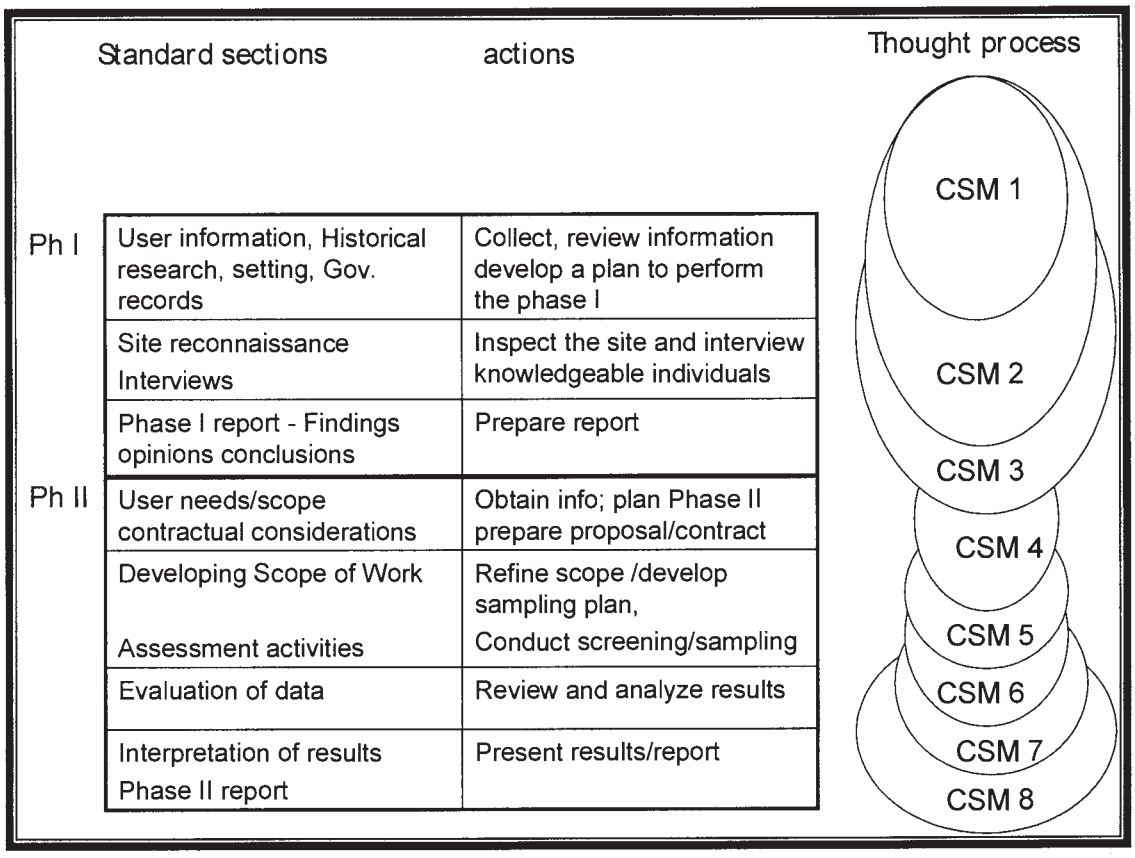

Figure 1.2 Conceptual representation of the relationship of the Standards, the tasks and the conceptual site model (CSM) thought process.

model become more robust, until a decision is reached to proceed with Phase II. The Phase II assessment may only use an applicable part of the conceptual site model developed in the Phase I portion of the process. As the Phase II process continues, the reiterations of the conceptual site model expand to include more information, once again creating a more robust model.

Scope of E 1903

E 1903 is primarily used to help users make business decisions

The Scope Section of E 1903 contains several underlying principles of the Guide. The Guide is designed to serve multiple purposes. First, the Guide establishes a framework for continuation of Phase I ESA with respect to RECs. This standard-defined concept enables it to be used for the innocent purchaser defense (IPD) and potentially the additional defenses offered under the Brownfields Amendment as discussed in Part One of this manual. However, the experience with the application of the Phase II Standard in the industry has demonstrated that in the majority of commercial real estate transactions, the Phase II investigations are designed to assist the parties to make business decisions. As such, many Phase II

investigations are not designed to qualify users for any of the legal defenses. The flexibility of the Standard Guide is well suited for these applications.

Today, few industrial properties are found without some level of contamination. Although the IPD was a central issue during the development, the initial Standards of the Phase I ESAs and Phase II ESAs have since evolved into useful business tools with multiple purposes. Both Standards reflect historical development in the marketplace. By the time the first Phase II Standard was written, the common use of the Phase I Standard for business decisions was recognized. The Phase II Standard was published in 1997, a full

3.1.3 business decision

– a decision based on various business risk management considerations relating to a specific property such as transfer of title or change in financing. Such considerations may also include the potential financial exposure associated with environmental risks, value of the property compared with the cost of environmental assessment, and the participation and motivation of specific parties to the transaction (that is, owner, seller, buyer, lender, etc.)

Figure 1.3 E 1903 definition of business decision.

four years after the initial publication of E 1527. E 1527 discussed aspects of a *business decision,* and four years later E 1903 defined the term, making it an integral part of the Standard, as shown in Figure 1.3.

Scope depends on user's business needs

The subsequent revisions of the Phase I Standard also reflected some of the changing applications of the Standards with respect to business decisions. The nature of the transaction, the risk tolerance of the purchaser, the purchase price, and many other factors influence the selection of scoping strategy. The scope of the Phase II ESA is often business decision driven, bearing no relationship to the traditional limited liability protection tools. Today, the EPs must be aware of the needs of the marketplace, and structure the scope of Phase II ESAs in a manner that affords the client sufficient information to reach business decisions.

Phase II ESA is not a full site characterization but only seeks reliable information

The E 1903 Scope Section points out that Phase II ESAs are not intended to be full site characterizations. The main reason why the client requests a Phase II ESA is that the information available up to this point is not sufficient to reach a business decision. The EPs' work is complete when the client is provided the extra information needed to make that decision. An answer on a single issue, such as detection of hydrocarbons in a monitoring well, may provide sufficient information to reach a business decision. During the scoping process of the Phase II ESAs, the EPs must repeatedly ask: "Will the proposed scope of work provide the information needed for the business decision, and are all the proposed steps relevant to the business decision at hand?"

One of the purposes of E 1903 is to establish a process to provide the user with reliable information. EPs will be the source of this information. Qualification, knowledge, and experience of the EP play a significant role in terms of reliability of the information. Inexperience can result in significant liability exposure of the consulting firm and the user. Yet, because of the market and price pressures, the EPs assigned to perform the Phase I and II ESA work often comprise the junior, least experienced and lowest cost staff in the firm. Senior staff members need to carefully review the manner in which the Phase I and II ESAs are being conducted to ensure compliance with Standards and conformity with the firm's policies and direction. EPs trained in the application of the Standards should understand significant differences in the two Standards and provide appropriate direction to the junior staff.

Junior staff given senior responsibilities

While E 1527 generally provides a cookbook recipe of how to do a Phase I ESA, the Phase II Standard leaves the recipe preparation up to the EPs. The Standards differ even on basic issues such as providing the user with credentials. E 1527 requires the credentials to be provided, while in E 1903 the EPs are only required to provide them if requested by the user.

As the industry matured through the late 90s, many properties were identified with various types and various levels of contaminants. When it became obvious that cleaning up the contamination to "original" or to below detection limits was impractical if not impossible, the risk based corrective approach became more accepted at both the federal and state level. With limited cleanup funding available, many properties were sitting in limbo awaiting further regulatory action. Some properties ended up with institutional or engineering controls. In order for these properties to be sold or redeveloped the Phase II questions did not deal with whether the contamination was present, but rather how and whether the contaminant levels will impact the redevelopment of the subject property. This obviously dictated a different approach to the Phase II assessments than what would typically be associated with establishing applicable limited liability defenses.

To demonstrate, consider the following example. A former gasoline service station was being considered for a development. For the

past 15 years the property was used only for car service and repair with the tanks back filled with concrete. The tanks used to leak, and the contamination assessment report from 15 years ago identified both soil and groundwater contamination. The property was in a state cleanup program, but due to risk ranking it was given a priority score that was unlikely to require any additional regulatory action at the property for the next 20 years. Experience with similar types of properties indicated that by the time the state program may reassess the property the contamination is likely to naturally attenuate to the point that no additional remedial action will be required. The property was in a desirable part of the town, and a buyer was interested in redevelopment of the property. Although the buyer was provided with a letter from the regulatory agency absolving them of liability for the cleanup, they were concerned with how the contamination may impact the construction during redevelopment. The Phase II assessment was designed to evaluate the potential of encountering contaminated soils and groundwater in the portion of the property where the foundation excavation was to take place.

Developing a Phase II ESA scope of services in conformance with the E 1903 Guide is a fact finding process in which the environmental professionals seek out an understanding of users' needs and apply their knowledge, experience, and expertise in selecting a course of action which enables the users to meet their business objectives.

Objectives of E 1903

Objective is to evaluate RECs

The objective of E 1903 is to evaluate RECs associated with the subject property. The objective of the transaction generally dictates the objectives of the assessment. This involves detailed two-way communication between the EP (preparer) and the client (user). Depending on the user's objectives, the Phase II ESA may employ numerous methodologies to accomplish the desired goals. In 1998, ASTM published a compilation of Standards related to the Phase II ESA process [3]. This publication alone has over 20 Standards that may be applicable to a specific segment of the site investigation. E 1903 does not specify which methodologies should be used. Many different Standards or methodologies may be applicable. This is the area where the users are looking for help from the EPs in determining what methodology will bring out the information the users are seeking. In order to choose the right method the EPs must know the extent of users' objectives and possess sufficient training and experience to implement the ESA. The objective of the Phase II Standard is to provide the EP with a thought process that can be used to structure a particular investigation to meet users' needs.

Sufficient information for business decision

The objectives set during the scoping process should enable the EPs to draw conclusions about the contamination of the subject property. The conclusions could simply be that the site has contamination, or that there is no reasonable basis to suspect site contamination associated with the REC under scrutiny. Alternatively, the conclusions could relate to the potential impacts on the expected future uses or redevelopment of the property. The conclusions should be such that they provide sufficient information to the user to make a business decision. In order for the conclusion to satisfy users' requirements, the EP must fully understand users' needs prior to finalizing the scope of the Phase II ESA.

Users' Needs

As we pointed out, in many cases establishing limited liability protection defenses is not the objective of the user. E 1903 recognizes that in many situations the extent of the assessment will be based on the business objectives of the user. The EPs must be cognizant of these objectives when establishing the scope of Phase II ESAs with the users.

No ESA eliminates uncertainty

None of the ESAs, including Phase II ESAs, can eliminate all uncertainty. This is why the Phase II ESA objectives are established on the degree of uncertainty acceptable to the user. For some clients, mere detection of contamination on the subject property may be sufficient to make a business decision. Under different circumstances, the extent of the contamination may be of importance in guiding the users' business judgments. Obviously, the scope of Phase II ESAs under each of the circumstances will vary greatly.

Risk tolerance varies

The risk tolerance varies from user to user. Some users are far more risk tolerant than others. The amount of risk tolerance will also affect the scope of a Phase II ESA. When multiple users are involved in the transaction, the EPs must identify the *key user* and tailor the scope of the Phase II ESA to meet those needs. For example, the purchaser may be considerably more risk tolerant than the lender. Although they are both users, the ESA must satisfy the needs and risk tolerance of the lender. Failure to do so will result in "no loan" and therefore "no sale."

A common misconception among both the users and EPs is that Phase II ESAs always involve sample collection. In actuality, Phase II ESAs may consist of conducting additional interviews or gathering additional historical information that can lead to satisfactory resolution of RECs. If, for example, an interview with a governmental official reveals that the agency has reviewed the contamination on the subject property and has determined that no remedial action is required, this information alone may be sufficient for the user to reach a decision.

Another example is when the EP raises concerns with the uses of the neighboring property. In one particular scenario, the Phase I

report identified a transfer station for waste management on adjacent property, and the environmental professional raised a concern as to how that use may impact the subject property. The environmental professional recommended a seemingly simple approach to take three direct push samples of soil and groundwater along the boundary of the property. However, this has invariably shown to be an inappropriate approach. In many instances, the parties suggest this approach when they expect a certain result. The environmental professional may have suggested the simple approach, expecting that the sampling will come back negative for contaminants, and thus this will be a hard data for the client to show that there is no contamination. That was the expected result. Any other result will raise questions and present problems that this type of investigation will not be able to resolve. With today's detection limits in parts per billion, invariably the results almost never come out below detection. Once data comes back, it has to be evaluated. Is the data representative? Is it part of the background? Did the methodology impact the reliability of the result? That evaluation can be impossible unless the potential for unexpected results is included in the sampling design. Let's consider some of the reasons why.

Any sampling approach has limitations. Those limitations and their impact on results should be discussed up front with the client.

In our example, taking three direct push samples in a line along a property boundary will not allow a good evaluation of background conditions of soil and groundwater, and it is unlikely to provide valuable information on groundwater flow. Additionally, these types of—quick and dirty—Phase II investigations are often susceptible to shortcuts in obtaining soil and groundwater parameters and often include QC sampling shortcuts that can cause interference due to parameters such as pH, turbidity, contamination, and cross-contamination. These are factors that can make evaluation and interpretation of the sample results almost impossible.

Then, when the results are potentially damaging to the real estate transaction, the typical comeback from the environmental professional is that they need more money to get more—better—data. At this point the results are causing problems, and a host of issues including litigation can surface. Since the Phase II Standard specifically allows the option of resolving concerns without sampling, those options should be identified and offered before making a decision to get some "quick" data. Interviewing the operator, including a visit to the neighboring transfer station facility, may provide sufficient information to resolve issues and provide the user with a better legal defense than test results that lack sufficient information to be accurately interpreted.

A written report is not required by the E 1903 Standard. If the user needs a report, the scope of the Phase II ESA may include report preparation and may even specify a format of the report. Although many scope issues and results of the investigation may be communicated verbally, the EP should adequately document communica-

Table 1.1 Potential limitations associated with the Phase II ESA process.

Limitations	Examples
Standards	Limitations associated with E 1527, such as radon, lead paint, etc., carry over.
Accessibility	Portions of the property may not be accessible or may be blocked by physical or natural obstructions such as rocks, cement pads, or sealed tunnels, or the current occupant may refuse access to the site.
Weather	Limitations associated with weather, such as snow, cold, and water table levels, etc., may hamper investigation or sampling ability.
User conditions	User's timetable, confidentiality agreements, cost, etc., may limit the scope of the investigation.
Safety	Physical, chemical and other hazards may limit or affect the scope of the investigation.
Equipment and methods	The equipment, equipment methods, sampling approach and analytical methods all have limitations that can have significant impacts on interpretability and usability of the data.
Qualifications	EP's qualifications and/or subcontractor may pose limitations on the work that can be performed.

tions, agreement on the scope issues, methods employed, and results obtained. EPs' professional code of ethics, local state and federal law may also impose reporting obligations on the EPs that need to be communicated to the user early in the scoping process.

Limitations

Limitations affect scope

During the scope of the services development process, numerous limitations must be considered. When a Phase II ESA is a continuation of the Phase I ESA, certain limitations imposed by E 1527 have a carryover effect into the Phase II ESA. The limitations of the Standards used to identify RECs need to be considered by the parties involved. Client needs may include asbestos investigation and others, which were beyond the scope of the Phase I ESA. The Guide provides a framework for an approach that may be employed for such items, but the specific methods selected and other details need to be spelled out in the scope portion of the Phase II ESA scope agreement.

Numerous other limitations may affect the investigation process and its outcome. Table 1.1 provides a partial list of potential limitations associated with the Phase II ESA process. These limitations and others must be considered by the EPs during the development of the scope of work. Users are typically not familiar with, nor do they recognize, some of the limitations associated with Phase II assessments. Failure to identify applicable limitations can cause disruption in the transaction process and significantly increase the potential for litigation.

Summary

In this chapter, we learned that the E 1903 Standard Guide is a compendium of information allowing EPs and the users numerous choices. The scoping process enables the preparer and the user to establish a mutually acceptable process. The EP designs the process. A thorough understanding of objectives, needs, limitations, and requirements is crucial in the determination of the appropriate scope of the work. In this chapter, we introduced the potential diversity of Phase II ESAs, which will be further demonstrated by examples and case studies in the following chapters. The issues in this chapter are closely related to the topics reviewed in Chapter 3 on the application and uses of E 1903.

References

1. E 1527 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process,* ASTM 2005

2. E 1903 *Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process,* ASTM 1997

3. *ASTM Standards Related to the Phase II Environmental Site Assessment Process,* compilation, ASTM 2001

PART TWO

Chapter 2

Expanding the Environmental Vocabulary

In this chapter, we will examine how the broad scope of E 1903 affects the environmental professionals' vocabulary. We will discuss:

- **Standardized terminology of E 1903**
- **Referenced terminology**
- **Phase I and Phase II environmental professional definitions**

Standardized Terminology of E 1903

Business decision

In Part One of the manual we introduced and explained the importance of standardized terminology. The E 1903 Standard [1] has 37 standard definitions. Many of these definitions are related to sampling and site investigation activities that may be associated with the Phase II environmental site assessments (ESAs). Closer examination of some of the definitions in the E 1903 Standard provides additional insights into the intent and scope of the Standard. We have already reviewed the definition of a *business decision*. The resolve of the ASTM E 50 Committee to include it in the E 1903 Standard demonstrates that business risk management considerations are an integral part of the Phase II ESA process.

Terms related to sampling methods

Acronyms such as *Applicable or Relevant and Appropriate Requirements* (ARARs) are defined in the Terminology Section of E 1903. This term is used in CERCLA and interpreted by EPA regulation, and it demonstrates the continuing relationship of the Phase II ESA Standard with CERCLA. It also indicates how federal or state cleanup regulations and requirements may become part of a specific Phase II ESA process.

Chain of custody and *quality assurance/quality control (QA/QC)* and similar terms defined in E 1903 point to the fact that Phase II ESAs generally include sampling of environmental media on the subject site.

Both E 1527 [2] and E 1903 contain definitions of environmental professionals (EPs). In the 2005 version of the E 1527 Standard, the definition of the environmental professional has changed significantly from the previous versions. The changes were driven by the Brownfields Amendment. At the time of the writing of the

manual the changes in E 1527 are in turn driving the changes in the Phase II Standard, primarily for consistency reasons. The definitions continue to reflect the trend in the industry of increasing the professional requirements when going from Phase I to Phase II assessments. The Phase II environmental professional is likely to have sufficient qualification to meet the requirements of the Phase I environmental professional, but not all Phase I environmental professionals will meet the requirements to practice as the Phase II professionals. One of the modifications being considered by the task group revising the Phase II Standard was to include definitions of persons other than the Environmental Professional that may be involved in the Phase II process. Because of the potentially significant and frequent revisions of the Standards it is imperative that the professionals using the Standards stay current on the applicable changes.

The current differences in the definitions between the two Standards can be seen in Figure 2.1. In the Phase I ESA the environmental professional has to meet the requirements of the federal regulation. The Phase II ESA definition is currently less complex. It requires the environmental professionals to be able to prepare and implement the Phase II ESA. The E 1903-97 definition also includes discussion language with respect to potential licensing requirements. This is generally related to federal or state regulated sampling or investigation activities that may end up being included in the Phase II ESA. For example, Phase II ESA under the EPA's oversight requires specific qualifications for certain portions of the assessment. Many Brownfields programs also include special requirements. Figure 2.2 is an example from the Brownfields Program in Florida. Most states have similar requirements. Many of the non-scope issues of Phase I assessments may be included in the Phase II assessments, and special regulations will apply. A number of states regulate asbestos, and radon testing in public buildings. The State of Texas also regulates mold. Integrity testing and evaluation of underground storage tanks (USTs), in many states, can only be performed by state certified personnel.

The requirement of being able to develop sound opinions in Phase II ESA emphasizes the focus on sound scientific supporting data when rendering opinions in Phase II ESAs.

Referenced Terminology

D 653 soil and rock

E 1903 also specifically references D 653 *Terminology Relating to Soil, Rock, and Contained Fluids* [3]. This Standard contains definitions that were prepared jointly by ASTM and the American Society of Civil Engineers. The D 653 Terminology Standard is a 32 page alphabetical listing of terms relating to soil, rock, and contained fluids. It is under the jurisdiction of ASTM Committee D-18 on soil and rock.

E 1903 and D 653 are included in a compilation of Standards entitled *ASTM Standards Related to the Phase II Environmental*

E 1527-05

Environmental Professional *– a person meeting the education, training, and experience requirements as set forth in 40 CFR §312.10(b). See Appendix X2. The person may be an independent contractor or an employee of the user.* Appendix X2 then expands the definition as follows:

Environmental Professional means:

(1) a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of releases or threatened releases (see §312.1(c)) on, at, in, or to a property, sufficient to meet the objectives and performance factors in §312.20(e) and (f).

(2) Such a person must: (i) hold a current Professional Engineer's or Professional Geologist's license or registration from a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) and have the equivalent of three (3) years of full-time relevant experience; or (ii) be licensed or certified by the federal government, a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) to perform environmental inquiries as defined in §312.21 and have the equivalent of three (3) years of full-time relevant experience; or (iii) have a Baccalaureate of higher degree from an accredited institution of higher education in a discipline of engineering or science and the equivalent of five (5) years of full-time relevant experience; or (iv) have the equivalent of ten (10) years of full-time relevant experience.

(3) An environmental professional should remain current in his or her field through participation in continuing education or other activities.

(4) The definition of environmental professional provided above does not preempt state professional licensing or registration requirements such as those for a professional geologist, engineer, or site remediation professional. Before commencing work, a person should determine the applicability of state professional licensing or registration laws to the activities to be undertaken as part of the inquiry identified in §312.21(b).

(5) A person who does not qualify as an environmental professional under the foregoing definition may assist in the conduct of all appropriate inquiries in accordance with this part if such person is under the supervision or responsible charge of a person meeting the definition of an environmental professional provided above when conducting such activities.

Relevant experience, as used in the definition of environmental professional in this section, means: participation in the performance of all appropriate inquires investigations, environmental site assessments, or other site in investigations that may include environmental analyses, investigations, and remediation which involve the understanding of surface and subsurface environmental conditions and the process used to evaluate these conditions and for which professional judgment was used to develop opinions regarding conditions indicative of releases for threatened releases (see §312.1(c)) to the subject property.

E 1903-97

Environmental Professional *– a person or group of persons possessing sufficient training and experience necessary to prepare and implement a Phase II environmental site assessment in accordance with this guide, and from the information generated by such activities, having the ability to develop opinions and conclusions regarding recognized environmental conditions in connection with the property in question. An individual's status as an environmental professional may be limited to the type of assessment to be performed or to specific segments of the assessment for which the professional is responsible. The person may be an independent contractor for an employee of the user. Discussion – Some jurisdictions may have licensing requirements for individuals who perform certain activities included in Phase II ESAs.*

Figure 2.1 Comparison of definitions of environmental professional from ASTM Standards.

Department of
Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

CONTRACTOR CERTIFICATION FORM
Brownfields Redevelopment Program

Contractor Name _____ Date: _____

Contractor Address: _____

Contact Name: _____

Phone No.: _____ Fax No.: _____

Brownfield Site ID #: _____

Contractor Certifies by Checking All Appropriate Boxes:	Yes	No
1. It meets all certification and license requirements imposed by law.	☐	☐
2. It performs or contracts laboratory analysis pursuant to National Environmental Laboratory Accreditation Program certification requirements and performs or contracts field-sampling work in accordance with the Standard Operating Procedures for Field Activities pursuant to Chapter 62-160, Florida Administrative Code.	☐	☐
3. It complies with all applicable OSHA regulations.	☐	☐
4. It maintains Workers' Compensation Insurance for all employees. **[Provide insurance certificate]**	☐	☐
5. It maintains:		
a. **Comprehensive General Liability** coverage with minimum limits of not less than $1 million per occurrence and $2 million general aggregate for bodily injury and property damage, and	☐	☐
b. **Comprehensive Automobile Liability** coverage with minimum limits of not less than $2 million combined single limit, and	☐	☐
c. **Pollution Liability** coverage with limits of not less than $3 million aggregate for personal injury or death, $1 million per occurrence for personal injury or death, and $1 million per occurrence for property damage, and	☐	☐
d. the State as an additional insured on the contractor's Certificate of Insurance certificates by naming the State as an **Additional Insured** party. **[Provide insurance certificates]**	☐	☐
6. It maintains **Professional Liability** coverage with minimum limits of at least $1 million per claim and $1 million annual aggregate. **[Provide insurance certificate]**	☐	☐
7. Has the capacity to perform the majority of the site rehabilitation		

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Figure 2.2 An example from the Brownfields program in Florida.

program tasks pursuant to a brownfield site rehabilitation agreement or supervise the performance of such tasks by licensed subcontractors in accordance with Section 489.113(9), F.S. ☐ ☐

The person named below by signing as an "Officer of the Company" hereby certifies to the Florida Department of Environmental Protection (FDEP) that the Contractor named above meets the requirements for contractors participating in the Brownfields Redevelopment Program [Sections 376.80(6) and (7), Florida Statutes (F.S.)]:

_____ _____

Signature of Officer of the Company and Date Signed — Print Name of Officer of the Company

_____

Title of Officer of the Company

This form will be kept on file by the FDEP District office. Contractors must immediately notify the FDEP (Brownfields District Coordinator) of any change in the above criteria. The FDEP may order a suspension or cessation of work for failure of a contractor to maintain their required certification. For additional guidance regarding completion of this form, please see the attached "Tip Sheet for Contractor Certification Form". Please return this form (without the Tip Sheet) to the appropriate District Brownfields Coordinator. **This form is not for use with a joint Brownfields / RCRA program site.**

Figure 2.2 An example from the Brownfields program in Florida.

Site Assessment Process [4]. The Standards in this compilation each contain a Terminology section further expanding the EPs' environmental vocabulary. The compilation is an excellent reference publication for EPs involved in Phase II ESAs. The back of the publication includes a combined index for all the Standards included in the volume. It is also available on CD-ROM, which makes Standards searching an easy task.

D 4750
D 5730
E 1527

A considerable amount of environmental terminology also comes from non-ASTM sources. Some of these sources of non-ASTM environmental terminology are listed in Table 2.1. The table is from ASTM D 5730 *Guide to Site Characterization for Environmental Purposes With Emphasis on Soil, Rock, the Vadose Zone, and Ground Water*. This is a useful source of various assessment and investigation methodologies and non-ASTM terminology related to the field of environmental science.

Terminology of E 1527 Phase I ESA is incorporated in the Phase II Standard by reference. Many of the terms introduced in E 1527 are used in E 1903. The environmental professionals should refer to the definitions in E 1527-05 until the Phase II Standard is revised.

D 4750 *Test Method for Determining Subsurface Liquid Levels in a Borehole of Monitoring Well* is also referenced in the Phase II Standard. The EP needs to be familiar with these Standards and their terminology.

ILD and IPD

The E 1527-05 Standard expanded the Landowner Liability Protections under CERCLA. Landowner Liability Protections (LLPs) include the bona fide prospective purchaser liability protection, contiguous property owner liability protection, and innocent landowner defense from CERCLA liability. E 1527-05 Phase I Standard Practice uses the term *Innocent Landowner Defense* (ILD). The Phase II Standard Guide uses the term *Innocent Purchaser Defense* (IPD), but it does not define either IPD or ILD. The Legal Appendix to E 1527 earlier editions used both terms interchangeably. The use of both terms can be confusing to the parties using the Standards. "Purchaser" implies that the property has not been purchased yet. Once it is purchased, the purchaser becomes a landowner. The key issue to remember by parties using the terms is that the defense can only be used if the *all appropriate inquiry* (the ESA) took place prior to the purchase of the property.

Table 2.1 Major non-ASTM references on terminology related to environmental site characterization

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Whitten, D. G. A., and Brooks, J. R. V., *The Penguin Dictionary of Geology*, Penguin Books, Baltimore, MD, 1972.

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Summary

In this chapter, we discussed the standardized terminology defined in E 1903. We learned that the Phase II ESAs may involve numerous issues regulated by other Standards or by federal, state, or local regulations. We identified numerous sources of related environmental terminology and introduced some of the assessment Standards specifically referenced in E 1903.

References

1. E 1903 *Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process*, ASTM 1997

2. E 1527 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM 2005

3. D 653 *Terminology Relating to Soil, Rock and Contained Fluids*, ASTM 2000

4. *ASTM Standards Related to the Phase II Environmental Site Assessment Process*, compilation, ASTM 2001

5. D 5730 *Guide to Site Characterization for Environmental Purposes With Emphasis on Soil, Rock, the Vadose Zone and Ground Water*, ASTM 1998

6. D 4750 *Test Method for Determining Subsurface Liquid Levels in a Borehole of Monitoring Well*, ASTM 1987

PART TWO

Chapter 3

Application and Uses of E 1903

In this chapter, we will examine different ways E 1903 is used by the EPs to satisfy users' needs. We will discuss:

- **Intended uses and applications of E 1903**
- **Limitations of E 1903**

Intended Uses of E 1903

As we have already discussed in Chapter 1 on the scope of E 1903 [1], the Standard Guide is primarily intended to reflect *good commercial and customary practice* for *an all-appropriate inquiry*. As such, it builds upon the *recognized environmental conditions* (RECs) typically identified in either the Phase I ESA or through some other avenues.

User decides whether to start with a TS, Phase I or directly with Phase II ESA

In Chapter 1, we also discussed how sometimes the user is not interested in pursuing the liability defenses and wants the environmental professional (EP) to investigate specific RECs or issues associated with property for entirely different reasons.

Some users regularly conduct Phase II ESA without ever having performed either Phase I assessment. If the user skips Phase I, then they will not be eligible for any of the liability defenses, and the Phase II results will be limited. If the users are only performing the Phase II to make a business decision, then they can initiate the inquiry directly with a Phase II ESA. For example, if the users are considering the purchase of a service station with a release associated with underground storage tanks and is only concerned with the condition of the tanks, they can hire the EP to conduct a Phase II ESA on the condition of the tanks. In effect, the user has identified a REC (a release at an underground petroleum storage tank) and is asking the EP to conduct a Phase II ESA on that specific REC.

The manner in which the users and the EPs apply the E 1903 Standard can be divided into three main categories:

- The classic CERCLA category
- The focused non-CERCLA category, and

- The broad non-IPD category

In the rest of this chapter, we will continue our discussion of the application of the Phase II ESA Standard by examining each category with the aid of case study examples.

The Classic CERCLA Category

This category of Phase II ESA is generally associated with properties that went through the Phase I ESA or the Transaction Screen, and the user does not have sufficient information to resolve one or several REC issues. The case study in Figure 3.1 is an example of such a situation.

Innocent Purchaser Defense Case Study

The property

The subject property is an automobile repair shop located in a commercial corridor of a medium sized town in Florida. The owner has passed away within the last year, and the widow would like to sell the business. The manager of the business has been working for the widow's husband for the past ten years and has expressed an interest in purchasing the property. He offered to put down a substantial (20%) down payment and obtain financing from a bank for the remainder of the purchase price. The purchase price represents a fair market value based on a certified appraisal. The bank wants a Phase I ESA performed on the subject property. Because of the substantial down payment, the manager also wants the Phase I ESA to protect the investment from potential liability.

The Phase I ESA

The Phase I ESA identified floor drains in the maintenance area of the property. Inspection of the drains confirmed the information from the interviews that the drains were back filled with concrete and were not in use. The manager had actual knowledge to 1988 that the drains were already sealed when he started working for the owner. Historical research revealed that the property was built in 1969 and was always used as an automotive repair store. In 1969 the property was paved and fenced. In 1975, the property was connected to a sewer. Records showed that the floor drains were sealed at that time. The inspection of the abandoned septic tank revealed collapsed portions of the septic tank walls and approximately one foot of shallow ground water. No smell or visible contamination was detected in the tank.

The Phase II ESA

The information presented in the Phase I ESA report was sufficient for the lender to conclude that no further investigation was warranted, and he was willing to proceed with the loan. The results of the Phase I ESA were not sufficient for the manager to proceed. He was concerned with potential ground water and soil contamination in the area of the septic tank from possible dumping of petroleum products into the drains before the property was hooked up to the sewer system. A Phase II ESA was performed to look into the REC identified by the manager's concern. The results of ground water and soil testing at the former drain field did not reveal detectable levels of petroleum contamination.

Figure 3.1 Case study on IPD application of E 1903.

The case study shown in Figure 3.1 demonstrates two significant issues. First, both users were pursuing the IPD and chose to use ASTM Standards as the appropriate tool. Second, the two users had dissimilar levels of risk tolerance. While the lender was satisfied with the results and concluded that no further inquiry was warranted, the purchaser wanted further testing to reach a level of confidence sufficient for his particular comfort level before he would proceed with the transaction.

The Focused Non-CERCLA Category

Section 4.1.2 specifically states that the application of E 1903 is not limited to CERCLA. The next two case studies demonstrate non-CERCLA application of the Standard. The user's needs can often focus the Phase II ESA investigation onto a specific issue associated with a single REC. The case study in Figure 3.2 is an example of a narrowly focused Phase II ESA.

E 1903 is used for generating scientific foundation for expert witness opinions

At first glance, the EP may be inclined to conclude that the case study in Figure 3.2 does not fall into the scope of E 1903. Obviously, CERCLA defenses were not the reason for the Phase II investigation here. The user (the insurance company) chose to use E 1903 for the following reasons:

- The user wanted an investigation related to a REC.
- The user wanted to locate the most applicable Standard in lieu of a non-standardized process.
- The user wanted to apply a scientifically based methodology.
- The user was involved in litigation.

When the user is faced with litigation and has to retain an expert witness to assist with issues of the case, the expert opinion should be based on sound scientific foundation. The foundation issue came under significant scrutiny during the Daubert versus Merrel Dow Pharmaceutical litigation [2]. This was a landmark case where the courts increased their focus on a scientific basis on which the expert testimony is presented. The intent was to limit proliferation of junk science in a courtroom.

Some of the ASTM members involved in product litigation were aware of many of the issues long before they surfaced in the Daubert case. In the early 80s ASTM Committee E-40 on technical aspects of product liability litigation developed and published several Standards on related topics. We have already introduced two of the Standards in Chapter 9 of Part One of this manual. Three Standards of interest to the EPs are listed in Table 3.1. In the absence of other applicable Standards, these Standards represent a useful reference for the EPs performing Phase II ESAs. Litigation is the strongest form of scrutiny that the EPs' work product can come under. Many of the specific tasks performed by EPs during Phase II ESAs may not have a specific Standard that the EPs can apply. In those cases, the EPs must critically review the selected

approach in order to meet the scientific foundation criteria necessary for development of sound technical opinions. The Standards listed in Table 3.1 present several useful hints and approaches applicable to Phase II ESAs.

Focused Non-CERCLA Case Study

The subject property is a service station with a recently installed tank field containing three 10 000 gallon fiberglass tanks on the east side of the service shop, as shown in the diagram below. Four monitoring wells installed at each corner of the tank field were not checked for the first six months after the installation of the tanks, because the owner was not familiar with the regulations. When the wells were checked for the first time, all had petroleum sheen and odor. Well number four had ½ of an inch of oily product. Subsequent investigation revealed damage to the pump piping at tank #3. The fitting at the tank was cracked. Soil samples taken around the tank field indicated significant soil contamination. The owner sued the tank installer for the costs of remediation. The tank installer's insurance carrier hired an EP to perform a Phase II investigation to confirm the origin of the contamination at the site. The majority of the contamination was found to originate from a UST under the service bay area used for waste oils.

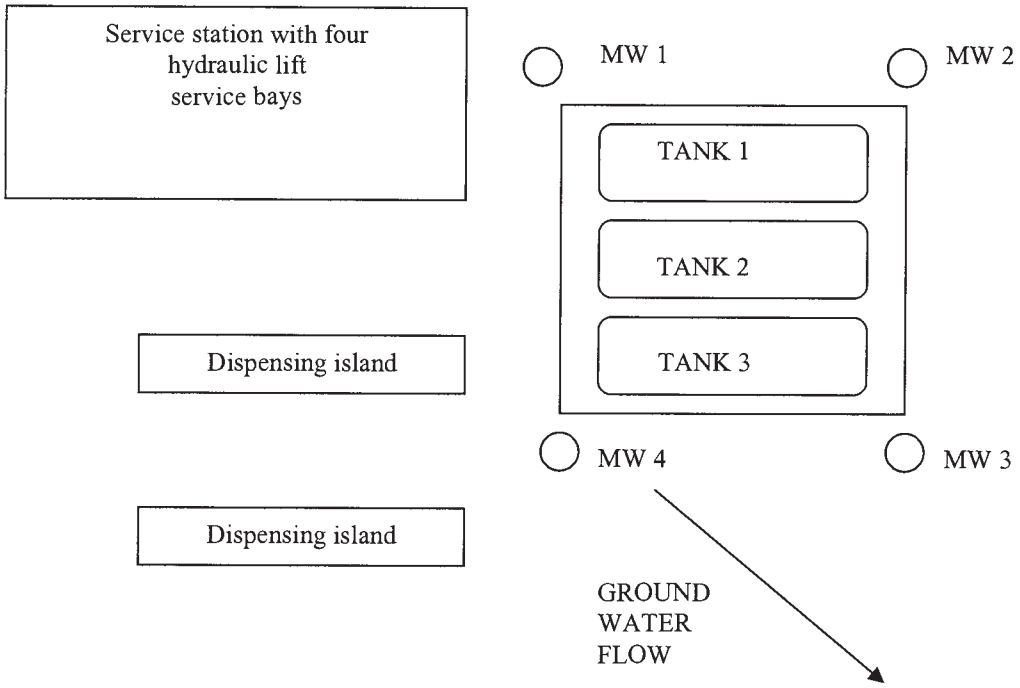

Figure 3.2 Non-IPD Phase II ESA case study.

Table 3.1 Selected Standards of E-40 Committee on product liability litigation.	
ASTM Standard Designation	Title
E 860 [3]	*Standard practice for examining and testing items that are or may become involved in product liability litigation*
E 678 [4]	*Standard practice for evaluation of technical data*
E 620 [5]	*Standard practice for reporting opinions of technical experts*

The Broad Non-CERCLA Category

The examples that we looked at thus far involved the narrow scope of Phase II ESAs. Under some circumstances, user needs will dictate a very broad scope. The case study in Figure 3.3 illustrates the other end of the potential spectrum of Phase II ESAs.

In the case study scenario shown in Figure 3.3, the user chose to go directly to the Phase II ESA investigation for several reasons. Having ownership of the property, IPD was not an issue. He did not want to perform Phase I ESA, because at least in the initial stages he did not want a report. The Phase I ESA Standard requires a report; Phase II ESA does not. Additionally, the user had no interest in historical uses of the property or any of the surrounding area RECs. The Phase II ESA enabled him to select RECs which he considered important for achieving his business goals.

Some professionals may argue whether E 1903 is the appropriate Standard to use for the property descirbedin the Figure 3.3. There are no specific Standards that address the process of restoration of abandoned plating facilities. E 1903 was applicable to this property based on the REC principle. Although in broad terms, the user identified the RECs that he realized needed a higher level of inquiry. The RECs were issues of contamination/cleanup of the *abandoned plating operation*, the EP applied the scientific principles outlined in E 1903 to provide the user with an appropriate investigation to resolve the issues at hand enabling the user to meet his business goals. Application of scientific principles and the EP's professional judgment facilitated focusing of the Phase II ESA tasks on minimizing wastes. This was accomplished by containerization to stop any further leaks, identification of materials for recycling and resale, and determination of the contamination impacts to the ground and groundwater at the subject property.

The manner in which the environmental professional applies the Phase II Standard in design of the investigation is often dictated by

Non-CERCLA Broad Scope Case Study

Abandoned Plating Operation

The User

The user is a real estate developer and commercial property manager. One of his properties was leased for plating operation for a number of years. The owner has just received word that the tenant, who has been behind on rent, has passed away. Preliminary information indicates that the plating company has no assets and has ceased operations. The owner stopped by the property and saw that there appeared to be some environmental issues because he noted drums of chemicals and tanks full of liquid with some spills visible on the floor. The owner wanted to clean up the building so that he could lease it to someone else. He requested a Phase II ESA.

The Environmental Professional

The client has asked the EP to perform a Phase II ESA in two stages. The first stage required the EP to take a look at the property and identify RECs associated with the plating operation. The second stage was to propose a scope of the cleanup including preliminary cost estimates. The EP conducts a site visit and notes the following RECs:

- *Acid waste*
- *Heavy metal waste*
- *Stains and spills of plating chemicals*
- *Miscellaneous drums and containers of labeled and unlabeled waste leaking on and through the slab to the soil.*

Associated findings

The site is an industrial park. The ground water is shallow (15 to 20 feet). Soils are highly permeable sands and gravel. This was the only tenant in a five-year-old building.

Figure 3.3 Broad scope of Phase II ESA case study.

the objectives of the user. If not designed properly, Phase II investigations can be costly exercises providing little or no value to the clients. It is frustrating for the client to discover that they are paying for an investigation that just raises more questions instead of resolving issues. For this reason, it is important for the environmental professional to understand the intent of the users. This point is demonstrated in the case study in Figure 3.4. The client wanted to use the funds for cleanup actions rather than unnecessary investigation. The investigation was designed to maximize the available resources to achieve the final objective–effective remediation.

Phase II investigation design with the intent of remediation

The subject property is a small shopping center. The corner tenant is a dry-cleaning operation. The last dry cleaning tenant went bankrupt, and the bank chose to repossess the equipment for resale. During the removal of the equipment the tank of chlorinated solvent was compromised, and the soil and ground water under the building were impacted. Preliminary investigation confirmed soil and ground water contamination, with the highest concentrations in the area of the spill. The owner of the shopping center was considering sale of the property and contacted the environmental professional to assist with resolving the environmental issues.

During the meetings with the client it became apparent that the client was interested in cleaning up the property as quickly as possible and minimizing the cost of the investigation. His strategy was to spend the money up front for the cleanup to expedite the process and then try to recover some of the expenses through litigation. The new tenant was operating a dry cleaning operation in the facility, and the remediation had to be accomplished with minimum disruption to the operation.

The intent of the user significantly affected the design of the Phase II assessment. The well points and well construction were designed with the intent of obtaining all of the necessary remediation parameters as well as enabling the installations at the site to be used for remediation technologies. This minimized the investigation phase and allowed resources to be used for remediation. The well point and well constructions were chosen to enable a combination of three technologies to be instituted at once and thus achieve maximum synergies for the site. It required only one site mobilization, and dual phase extraction was used to drive distribution of reagents and polishing media.

Figure 3.4 Phase II investigations with intent of remediation, well installation and well injection extraction points.

E 1903—written practical reference for inquiry of RECs

The applications of the E 1903 Standard Guide are not necessarily limited to just the three categories of Phase II ESAs discussed above. Potentially, there can be numerous other instances where the application of E 1903 is entirely appropriate. The intent of E 1903 is to provide a written practical reference document describing procedures for appropriate inquiry into the environmental conditions of a particular piece of property. The Standard can also be used to determine whether reasonable and scientifically based procedure was followed in a particular Phase II ESA.

Limitations Associated with the Application of E 1903

Does not address user judgments

Although E 1903 is used to assist the user with business decisions, it does not address any of the judgments based on the interpretation of the data collected. Users' judgments will be affected by other variables besides the results of the Phase II ESA. These variables are very much transaction specific and include legal, business, and environmental risks.

IPD or CPO may not be available if de minimis contamination is found

E 1903 does not address the legal risks if the Phase II ESA confirms detectable levels of contamination. Environmental professionals and users often struggle with the definition and interpretation of *de minimis*. Neither E 1527 nor E 1903 defines the term in their respective terminology sections. De minimis is explained within the "in the scope" Section of E 1527-05. The term generally refers to contamination levels above background levels, but not above the action levels, which would result in regulatory action or remediation requirements. It is important to note that the definition of *de minimis* based on this interpretation is a moving target. As regulations change, so do the action levels. The change in regulation can turn a particular ESA result from *de minimis* to significant. The retrospective nature of CERCLA may result in remediation requirements in the future. Action levels also vary, depending on the use of the property. If the use of the property changes, the change can result in different action levels being applied to the results of the Phase II ESA, potentially requiring some form of remedial action at that time. The net result of these implications is that when the Phase II ESA confirms the presence of contaminants above the background levels the availability of ILD or CPO is not assured. The presence of contamination on the property exceeding the background levels can result in further investigation and/or remediation activities in the future. If contamination is discovered, the purchaser may still be able to qualify for BFPP.

Only answers questions about RECs investigated

E 1903 limits the conclusions reached during the Phase II ESA to the RECs assessed in the investigation. If, for example, the Phase II ESA concludes that no further investigation is warranted, the conclusion only applies to the RECs investigated in the scope of the Phase II ESA. Other RECs, not part of the investigation, may have resulted in contamination of the subject property. The RECs may have been missed due to an inadequate Phase I ESA or Trans-

action Screen, or they may have been specifically excluded from the scope by the user. The potential for missed RECs is even higher in situations where the user identified the REC and chose to proceed directly to Phase II ESA and limit the scope to the single REC issue.

There is also a possibility that contamination is present, but the Phase II ESA failed to detect it. Failure to detect can be a result of numerous factors. Table 3.2 provides a list of factors by class, which may limit the ability of the EPs performing Phase II ESAs to detect contamination at the subject property.

Does not eliminate uncertainty

The principle that "no ESA can eliminate all uncertainty" applies to E 1903. Invariably, the Phase II ESA is an investigation which often includes sampling. The sample is then assumed to be representative of certain conditions of the subject property. That assumption may or may not be accurate. Assumptions, therefore, impart uncertainty into the Phase II ESA. The uncertainty associated with the assumptions can be reduced by increasing the level of assessment, i.e., by taking more samples or increasing the number of sampling locations. The law of diminishing returns applies here in that the cost of information obtained and the time required to obtain it eventually outweigh its usefulness and may hinder the timely completion of the transaction. When evaluating the adequacy of the Phase II ESA, the person performing such evaluation must consider the reasonableness of judgments and assumptions made under the circumstances present at the time of the Phase II ESA.

Table 3.2 Factors influencing REC detection ability.

Class	Factors
Site related	Complex geological site settings such as rock formations, clay layers, etc. Underground structures/obstructions such as utilities, foundations, tunnels, etc.
Contaminant related	The REC was improperly identified, and the ESA did not test for the contaminant.
Methodology related	Inappropriate choice of methodology, such as insufficient detection limits or taking samples in the wrong place, caused the contaminant not to be identified in the ESA.
Laboratory related	Laboratory-made error, holding times were not met, etc.
Time related	Time constraints did not allow sufficient ESA to be performed, i.e., the EP only had time to field screen the property.

Like any of the ESAs, the Phase II ESA can be described as a picture of the property at a certain point in time. Over time the conditions at the subject property can change and significantly affect the perception of the adequacy of the Phase II ESA. Accurate documentation of dates associated with specific events during the Phase II ESA is the best protection that the EP has for maintaining integrity and defensibility of the work performed.

Summary

In this chapter, we continued our discussion of different applications of the Standard that we began in Chapter 1. We used case studies to demonstrate three basic categories of the Phase II ESA. Lastly, we reviewed some of the limitations associated with the Phase II ESA and the effect of the limitations on the results.

References

1. E 1903 *Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process*, ASTM 1997

2. New York State Bar Association, *Product Liability Litigation-Post Daubert: A Nuts and Bolts Analysis of a New Era*, 1994

3. E 860 *Standard Practice for Examining and Testing Items that Are or May Become Involved in Products Liability Litigation*, ASTM 1987

4. E 678 *Standard Practice for Evaluation of Technical Data*, ASTM 1984

5. E 620 *Standard Practice for Reporting Opinions of Technical Experts*, ASTM 1985

PART TWO

Chapter 4

Contracts

In this chapter, we will review some of the contractual issues associated with Phase II ESAs and focus on the contractual issues that E 1903 recommends being resolved before the start of the ESA. We will discuss:

- **Conceptual definitions of contracts**
- **Reporting obligations and confidentiality**
- **Subcontracting**
- **Generation of waste and exploration damage**
- **Responsibilities**

Conceptual Definition of Contracts

Contracts are disclosure documents

Contracts define the relationship between the user and the environmental professional (EP). A contract is an agreement by both parties that defines mutually agreeable duties and responsibilities. The contract is a disclosure document that identifies numerous issues that may arise during the course of the Phase II Environmental Site Assessment (Phase II ESA) and describes the approach that will be used to resolve those issues. The contract also describes fees and payment obligations of the parties involved. Lastly, the contract also identifies the scope of work, sometimes by a detailed description of the tasks by reference to the Standards and work plans or any combination thereof. All of the issues discussed in the previous chapters on scope and application of the Standards must be considered during the contracting period of the Phase II ESA.

Phase II contracts more complicated than Phase I

The broad applicability of E 1903 [1] can have a significant effect on contracting. Compared with the relatively straightforward Phase I contracts, which in essence bind the parties to follow the E 1527 [2] practice, the Phase II contracts are usually more complicated. Currently E 1903 is a guidance document, and as such, does not have a definitive set of steps to follow. It provides the conceptual framework, but it leaves the details up to the user and the EP. If the details are not adequately addressed at the outset, the outcome of the Phase II ESA may be adversely affected, and, in the worse case scenario, result in litigation.

Contracts favor authors

Generally, if the users author the contracts, the language of the contracts will favor the users. The converse is also true. The EPs will generally write a contract favoring their interests and protection. Neither party should sign a one-sided contract without due consideration. Unfortunately, the constraints of time and the pressures of the market sometimes influence the judgment of one of the parties. If the party happens to be the EP, the eagerness to land the project can cause the EP to commit to unrealistic goals and schedules.

E 1903 does not have any specific contract requirements

In this chapter, we will discuss some of the issues that the users and the EPs should consider before entering into contractual relationships. Many of these issues are often considered and discussed by both parties, but end up not being included in the language of the contract. E 1903 does not have any specific requirements with respect to the contents of the contract. The format and the content of the contract is left entirely up to the discretion of the EP and the user.

Reporting Obligations and Confidentiality

During the contracting stage, some of the most important issues that the EPs need to communicate to the user are reporting obligations. In order to demonstrate some of these issues, let's conceptually consider the EP's involvement in Phase II ESAs.

Confirmation of contaminants can cause problems

Generally, the EP is hired because some of the information in the user's possession constitutes substantial evidence to indicate that further inquiry is warranted. There are two possible outcomes from the Phase II ESA. Contamination is either confirmed or not found. When the Phase II ESA does not identify any contamination, the user will generally stop at that point and proceed with the transaction. The problematic outcome crops up when the contamination is confirmed. Before the user opened that door, the potential was there, but not confirmed. The confirmation of contamination in the Phase II ESA generally shuts the door on the innocent purchaser defense (IPD) and contiguous property owner (CPO). Once the contamination is confirmed in Phase II the prospective purchaser may still qualify for the bona fide prospective purchaser (BFPP). If the users chose the BFPP, then complete disclosure of all results is typically desirable. Since the BFPP carries with it continuing obligations, the purchasers will typically use the Phase II ESA to document as many existing contaminants at the site prior to the purchase. This can protect them in the event that there is an investigation in the future that reveals contamination not discovered prior to the purchase. If the purchaser did not cause the newly discovered contamination, they may have to defend themselves against claims that they failed to meet their continuing obligations.

EPs/owners have reporting obligations

Another potential problem associated with confirmation of contamination on the subject site is the level to which the results appear to indicate that the contamination exists. At the lowest level, the EP may conclude that the contamination is *de minimis* and reports the results to the user only. The potential problem with this situation relates to the confidence that the EP has in the *de minimis* conclusion. In simple Phase II where a minimum number of samples were collected, the possibility of missing the contamination can be very high. The question becomes whether the results are representative or whether they indicate that there may be other areas on the property that have significantly higher levels of contaminants.

In cases where the results indicate that the contamination is significant, the EP might be under professional obligation to report the result to a third party. The third party reporting could be caused by statutory, regulatory, or other requirements. The EPs may also be under professional obligations to report the findings due to professional licensing and certifications.

In many states, the owners also have reporting obligations. In cases where the owner is not the user, the reporting obligations can significantly complicate the relationship. Some EPs require the owners and the users to acknowledge reporting obligations prior to conducting fieldwork. E 1903 suggests that the EPs should clearly define the obligations and protocol for both the EPs and the users to report to the government and third parties. These obligations and protocols should be clearly documented in the contract.

Interpretation affects reporting obligations

The integral problem incorporated into the reporting obligations associated with Phase II ESAs is associated with the interpretation of the results. Although the Phase II ESA can be the first step towards the characterization of the subject site, the results often fall short of being representative of the conditions of the subject property. The EP may interpret the results to be representative of a release, and believes he has a duty to report the results to the third party. The user or the owner may insist that the results are not representative of the site and are caused by other factors such as localized contamination, sampling, or laboratory error. The difference in opinion can result in further testing. Based on the interpretation of the results, the parties involved will argue over who should pay, not just for the additional testing, but also for the cost of involving a third party in the transaction. Since these costs can be significant, many users are concerned and try to impose confidentiality issues onto the EP. The case study in Figure 4.1 illustrates some of the basic aspects of these potential complications.

Communicating with the client and asking "what if" questions during the contracting stage can avoid misunderstanding, disagreement, and unexpected reporting. Confidentiality commitments and limitations on the scope of the work need to be clearly understood by both parties.

Case Study on Ethical Issues

The user operates a large metal galvanizing facility. The bank required a Phase II ESA prior to refinancing a loan for the user. The EP conducted a Phase II ESA, concentrating on soil and ground water down-gradient of RECs. The user stated that the water supply well, located up-gradient of the REC, was not contaminated, and the ground water in this portion of the facility was not investigated. The water supply well was used in the decontamination operation during the Phase II ESA and was sampled to document the quality of the decontamination "Source Water."

The concentration of lead in the decontamination source water was several times the drinking water standard. The well supplied water for the industrial process and for fire suppression, as well as potable water for the plant with no treatment for removal of metals.

The EP informed the user of the high lead concentration in the potable water being consumed by plant personnel. The user did not want to alarm plant personnel and requested the EP not to disclose the results. The EP informed the user of reporting obligations and, that if the plant personnel were not informed and protected, the appropriate state agency would be notified. The user then informed the plant personnel and provided bottled water for potable use.

Figure 4.1 Ethical issues case study (adapted from ASTM Phase II TPT class [3]).

Form of communication should be defined in the contract

Generation and disclosure of written communication is also a contracting issue. E 1903 does not require a written report. Let's assume that the EP walks onto the subject property and begins to conduct preliminary field screening which indicates a substantially large problem and of sufficient magnitude for the user to terminate the real estate transaction. The agreement between the user and the EP should be flexible enough to enable the EP to stop at that point and notify the user. Both parties should have a mutual understanding of how to terminate any further effort at that point. The contract should also define who is privileged to the information generated up to that point.

Subcontracting

Subcontracting increases liability

Portions of Phase II ESAs are often subcontracted to other parties, such as investigators, drillers, and laboratories. Under some circumstances, the user may want to exercise control over the selection of these individuals or organizations. These issues can be problematic, in that the control over selection of subcontractors will involve new liabilities and these need to be appropriately disclosed. If the user selects subcontractors to perform work for the EP, who is liable for the work they perform? Similarly, if the EPs chose to subcontract a portion of the work to subcontractors, who

is liable for the work of the subcontractor? The case study in Figure 4.2 illustrates just some of the complications that may arise from subcontracting.

Generation of Waste and Exploration Damage

Waste should be addressed in the contract

The case study shown in Figure 4.2 raises some of the basic subcontracting issues as well as the issue of generation of waste. Many cleanup operations require the EPs to consider the disposal issues. In the case of remediation, the wastes sometimes have to be removed from the site. Although many Phase II ESAs do not involve remediation, many of the exploratory activities, including a simple purge of a monitoring well, can result in generation of waste. Some of these issues can become quite complicated, as they involve exploration operations on a property that is often owned by someone different from the user. The owner might object to the EPs disrupting the property and potentially generating waste. The classifica-

Case Study on Subcontracting: Lessons Learned

A national environmental service firm had a master service agreement (MSA) with a user covering all of the user's facilities within the USA. The MSA was structured primarily for the provisions of ESAs but allowed for other services on as-required bases. As part of other services, one of the projects included the removal, transportation and disposal of wastewater and petroleum-contaminated sludge contained in several large above-ground storage tanks. The office in contact with the client subcontracted the project to a local office of the firm in close proximity to the project site. The local office in turn subcontracted the removal, transportation and disposal services directly to a local company that operated a disposal facility near the project site.

The disposal facility ran into trouble, and the EPA initiated an emergency response/removal action. As part of its cost recovery efforts, the EPA identified the environmental service firm as a Possible Responsible Party (PRP).

The MSA with the client was based on the client's standard form of agreement, with contract terms strongly slanted in favor of the client in terms of indemnification and risk allocation. The contract between the environmental service firm and the disposal subcontractor did not include a limitation on the scope of services provision and did not require that the subcontractor possess Environmental Impairment or Pollution Liability coverage.

Due to the contractual deficiencies the environmental service firm agreed to pay approximately $60,000 to the EPA in connection with damages caused by the subcontractors' mishandling of waste materials.

Figure 4.2 Case study on subcontracting (adapted from ASTM Phase II TPT class [3]).

tion of the waste materials is often not known until the results are received from the laboratory or from field tests. The EP must consider the waste generation issues and associated regulatory requirements and select appropriate techniques to minimize the impacts from the Phase II ESA exploration activities. The EPs should have up-front agreements on who owns any generated waste, who will sign waste manifest, and who will pay for the disposal.

Even a simple direct push investigation that included core sampling and groundwater tests can result in waste generation. The waste is typically collected and disposed of after the laboratory results are received. See Figure 4.3.

Exploration may release pollution

In addition to the difficulties associated with the potential generation of waste, the EPs must also consider a potential for damage due to the exploration activities. Although the exploration assumptions are made on the best information available, the drilling and excavation activities still involve the invariable risk of damaging utility lines and underground structures. Boring holes through soil layers can also create new pathways for the pollutants to migrate to a new location. The EP may actually cause the pollutants to be released into a new location due to the exploration activities. Many of these issues can result in significant impacts to third parties. The owners and operators of the facilities may have to be included in the contractual issues and work plan development to minimize the potential for damage, accidents, and litigation.

Figure 4.3 Waste generation from groundwater purging (right insert) and core sampling (left insert) is collected in a waste storage drum inside a fenced area. Photo by Zdenek Hejzlar.

Responsibilities

In the context of contracting considerations, both the user and the EP must fulfill certain responsibilities. E 1903 identifies the user's responsibility as having to provide access to the site and all of the pertinent information related to the Phase II ESA. Pertinent information may include any of the following:

- Previously prepared ESAs
- Environmental studies and reports
- Permits
- Appraisals
- Site plans
- Above and underground structure identification
- Boundaries
- Underground utilities
- Site specific health and environmental safety information
- Known and suspected environmental conditions

Clearly identify RECs to investigate

The user is also a key player in the definition of the scope of the Phase II ESA. The user must decide which recognized environmental condition(s) should be the subject of the ESA. This information can come from a Phase I ESA. The user does not meet the requirement of the Standard by simply requesting a Phase II ESA on the property. In the absence of clearly identified RECs in the Phase I ESA, the user has the responsibility to identify the areas of concern for the EP to enable the EP to apply appropriate professional judgment to developing the applicable scope of work for the Phase II ESA.

If the REC issues are not clearly identified in the contract or the work plan, the EP could wrongfully identify and investigate RECs in the Phase II ESA that are of no concern to the user. The work performed by the EP could be considered inappropriate, but without sufficient input the user does not have much recourse in complaining that his needs were not met. Accurate definition of the RECs enables the users to focus the EPs' efforts in the direction that provides the user with information needed for accurate business decisions.

Conform to E 1903

The foremost responsibility of the EP is to conform to the requirement of the E 1903 Guide. If deviations from the Guide are necessary, the EP must provide appropriate reasoning in support of the deviations. All deviations must be appropriately documented.

Notify user of deviations from work plan

The EP may encounter numerous situations during the Phase II ESA that may affect the RECs under study. New RECs may also be uncovered that were not known or previously identified. With respect to the requirements of E 1903, the EP has a responsibility to promptly notify the user of any such developments.

Under some circumstances, the conditions encountered at the site may require significant deviations from the original scope of work.

The Guide requires the EP to promptly notify the user of any substantive deviations. Deviations must be approved by the user before the EP starts implementing them.

The EP is responsible for following applicable site health and safety considerations, including those that may be imposed by the occupant of the property and by the appropriate regulatory agency.

While the written statement of qualifications was required to be provided to the user in the Phase I ESA, the Phase II ESA Standard requires the EP to furnish those qualifications only if the user requests them.

Only perform work qualified to do

Federal, state, and local regulations may require special certification or licensing requirements in order for the EP to be qualified to perform certain portions of the Phase II ESA. As with any ESA, the EP should never undertake any activity that he or she is not qualified or licensed to perform.

Inform user of impact of limitations

Although it is generally the user who imposes cost and time constraint limitations on the EP and the scope of the ESA, it is the responsibility of the EP to communicate to the user the impact of those limitations on the quality, reliability, and extent of the Phase II ESA.

Brownfields Contractual Considerations

Many states and local governments have developed Brownfields programs in order to encourage reuse and redevelopment of existing properties. The programs offer a variety of incentives for the potential developers, including special liability protection for purchasers and developers of Brownfields designated properties. These transactions involve unique consideration, as they often require complex contractual agreements between the parties involved. Figure 4.4 includes portions of a typical Brownfields agreement that demonstrates some of the complexities of these types of contracts.

A significant change as a result of the AAI changes relates to the reliance on the reports and results. Even though a contract may specify that only certain parties may rely on the information, the EPA recognized that these reports will be used by others that may not have been a party named in the contract. This is often the case when the property is in the Brownfields program.

Summary

In this chapter, we discussed numerous contractual issues associated with Phase II ESAs. Through case studies, we demonstrated some of the reporting and subcontracting complications that may arise from inadequate contractual arrangements with the client. We also discussed some of the contractual responsibilities of users and EPs and through an example illustrated some of the complexities of Brownfields Contracts.

BROWNFIELD SITE REHABILITATION AGREEMENT PURSUANT TO §376.80(5), Florida Statutes (F.S.)

WHEREAS, the Brownfields Redevelopment Act was enacted to reduce public health and environmental hazards on existing commercial and industrial sites by offering incentives to encourage responsible persons to voluntarily develop and implement cleanup plans; and

WHEREAS, the Department of Environmental Protection ("Department") is the administrative agency of the State of Florida having the power and duty to protect Florida's environment and to administer and enforce the provisions of Chapters 403 and 376, F.S., and the rules promulgated thereunder, Chapters 62-777 and 62-785, Florida Administrative Code (F.A.C.), as amended; and

WHEREAS, the Department has jurisdiction over the matters addressed in this Brownfield Site Rehabilitation Agreement ("BSRA"); and

WHEREAS, the Department has the authority, pursuant to §376.81, F.S., to establish by rule, criteria for determining the rehabilitation program tasks that comprise a site rehabilitation program and the level at which a rehabilitation program task and a site rehabilitation program may be deemed complete; and

NOW, THEREFORE, in consideration of the mutual covenants and agreements hereinafter contained, it is agreed as follows:

This BSRA is entered into between the Department and ……. hereinafter the Person Responsible For Brownfield Site Rehabilitation ("PRFBSR") (collectively referred to as the "parties"), for the rehabilitation of a brownfield site within a designated brownfield area pursuant to §376.80(5), F.S. The Department and the PRFBSR agree to the following:

1. *DEPARTMENT OF ENVIRONMENTAL PROTECTION*

The Department is the agency of the State of Florida with authority and power to enforce the provisions of Chapters 376 and 403, F.S.

2. *PERSON RESPONSIBLE FOR BROWNFIELD SITE REHABILITATION*

M.J. Burges, Jr., Trustee is the PRFBSR as defined in §376.79(13), F.S., for the real property described in the map and legal description in ***Attachment A*** *(the "Brownfield Site"), incorporated herein, that has been designated by the City of Fort Myers in Resolution Number 2003-22, approved May 19, 2003 as a brownfield area as defined in §376.79(4), F.S.* ***Attachment A*** *is a composite exhibit that includes:*

(a) the legal description and location map of the Brownfield Site; and (b) the city resolution with the map of the designated brownfield area and its legal description.

3. *PRFBSR'S DUTIES*

The PRFBSR agrees:

(a) *to conduct "site rehabilitation" as defined in §376.79(17), F.S., at the real property described in* ***Attachment A****;*

Figure 4.4 Portions of model of a Brownfields agreement from Florida Department of Environmental Protection.

(b) *to conduct site rehabilitation and submit technical reports and rehabilitation plans in a timely manner according to the attached brownfield site rehabilitation schedule agreed upon by the parties (see **Attachment B**), and incorporated herein;*

(c) *to conduct site rehabilitation activities under the observation of professional engineers or professional geologists, as applicable, who are registered in accordance with the requirements of Chapters 471 or 492, F.S., respectively. Submittals provided by the PRFBSR must be signed and sealed by a professional engineer registered under Chapter 471, F.S., or by a professional geologist registered under Chapter 492, F.S., as applicable, certifying that the submittal and associated work comply with the laws and rules of the Department and those governing the profession. Upon completion of the approved remedial action, a professional engineer registered under Chapter 471, F.S., or a professional geologist registered under Chapter 492, F.S., as applicable, must certify that the corrective action was, to the best of his or her knowledge, completed in substantial conformance with the plans and specifications approved by the Department;*

(d) *to conduct site rehabilitation in accordance with Chapter 62-160, F.A.C., as the same may be amended from time to time;*

(e) *to obtain any local, state or federal approvals or permits required for the site rehabilitation work and to conduct the necessary site rehabilitation consistent with local, state, and federal laws, rules and ordinances. All site rehabilitation shall be consistent with the cleanup criteria in §376.81, F.S., the requirements of Chapters 62-785, F.A.C., Brownfields Cleanup Criteria, and 62-777, F.A.C., Contaminant Cleanup Target Levels, adopted pursuant thereto;*

(f) *to allow access by the Department during the entire site rehabilitation process as evidenced by the attached documentation (see **Attachment C**) incorporated herein, establishing that such site access has been secured by agreement with the PRFBSR. Upon the transfer of any real property interest in any portion of the Brownfield Site before site rehabilitation is complete, the PRFBSR shall submit to the Department within 15 days of the execution of the real property interest document (or if there is no written document, then 15 days from the date that such an interest is effective) a copy of an access agreement in substantially the same form as that in **Attachment C** with any successor in interest to the PRFBSR as owner of the Brownfield Site or with any party with an interest in the real property after the effective date of this agreement, granting such access to the Department; and*

(g) *to consider appropriate pollution prevention measures and to implement those that the PRFBSR determines are reasonable and cost-effective, taking into account the ultimate use or uses of the real property described in **Attachment A**.*

4. *CERTIFICATION*

*The PRFBSR has certified that a fully executed agreement exists between the PRFBSR and the local government with jurisdiction over the real property described in **Attachment A**. The executed agreement shall contain the terms for the redevelopment of the real property. A copy of the PRFBSR's certification is attached as **Attachment D**.*

5. *PROPERTY COORDINATES AND ACREAGE*

Figure 4.4 Portions of model of a Brownfields agreement from Florida Department of Environmental Protection.

The latitude and longitude coordinates in minutes, degrees and seconds, datum used, collection method, and accuracy of collection method used to determine the coordinates for the real property described in ***Attachment A*** *are:*

Latitude (in degrees, minutes and seconds):	*26° 37' 45.8" N*
Longitude (in degrees, minutes and seconds):	*81° 51' 24" W*
Datum Used (NGVD of 1929 or NAVD of 1988):	*NAD 1983 per LEE PA*
Collection Method:	*Lee County Property Appraiser website co-ordinate viewer (www.leepa.org)*
Map Source (if applicable):	_____
Map Source Scale (if applicable):	_____
Object of Interest:	*Parcel*
Relationship of Point to Object of Interest:	*Center of Parcel*
Coordinate Accuracy Level:	_____

The property consists of 1.68 acres.

6. *SITE CONTRACTOR*

The PRFBSR must ensure that the contractor who is performing the majority of the site rehabilitation program tasks pursuant to this BSRA or supervising the performance of such tasks by licensed subcontractors in accordance with the provisions of § 489.113(9), F.S., has provided certification to the Department that the contractor meets the requirements listed below. If the identity of the contractor is known at the time of the execution of this BSRA, a Brownfields Redevelopment Program Contractor Certification Form (CCF) shall be completed and attached as part of ***Attachment E*** *to this BSRA, along with signed originals of certificate of liability insurance and all other documentation required below. If the contractor has not yet been determined, the PRFBSR shall ensure that the CCF and all other documentation required in this section are submitted to the District Brownfield Coordinator and approved by the Department before the contractor begins performing any site rehabilitation tasks at the site.*

The PRFBSR must submit to the Department documentation as ***Attachment F****, which shows a National Environmental Laboratory Accreditation Program ("NELAP")-recognized authority has accredited the laboratory(s) performing analyses.*

Requirements for any contractor that performs site rehabilitation tasks at the site are as follows:

(a) documentation in accordance with the provisions of the paragraph above and with ***Attachments E and F,*** *if applicable, showing that any contractor that performs site rehabilitation tasks:*

(i) meets all certification and license requirements imposed by law; and

(ii) performs, or has laboratory analysis performed, pursuant to National Environmental Laboratory Accreditation Program ("NELAP") certification requirements and performs, or has field sampling work performed, in accordance with the Standard Operating Procedures provided in Chapter

Figure 4.4 Portions of model of a Brownfields agreement from Florida Department of Environmental Protection.

62-160, F.A.C., as amended, if applicable to performance of site rehabilitation tasks; and

(b) certification to the Department that the contractor who is performing the majority of the site rehabilitation program tasks pursuant to this BSRA or supervising the performance of such tasks by licensed subcontractors in accordance with the provisions of § 489.113(9), F.S.:

i. complies with applicable OSHA regulations;

ii. meets all certification and license requirements imposed by law;

iii. maintains workers' compensation insurance for all employees as required by the Florida Workers' Compensation Law;

*iv. maintains **Comprehensive General Liability** coverage with minimum limits of not less than $1 million per occurrence and $2 million general aggregate for bodily injury and property damage;*

*v. maintains **Comprehensive Automobile Liability** coverage with minimum limits of not less than $2 million combined single limit;*

*vi. maintains **Pollution Liability** coverage with limits of not less than $3 million aggregate for personal injury or death, $1 million per occurrence for personal injury or death, and $1 million per occurrence for property damage;*

vii. maintains and lists the State as an additional insured on the contractor's Certificate of Liability Insurance; and

viii. maintains Professional Liability coverage of at least $1 million per claim and $1 million annual aggregate.

7. *CONTINUOUS COMPLIANCE*

*During the entire site rehabilitation process, the PRFBSR agrees to ensure that the contractor continues to comply with the requirements of **Paragraph 6** of this BSRA pursuant to the requirements of §376.80(6) and (7), F.S.*

8. *VOLUNTARY CLEANUP TAX CREDIT PROGRAM*

Not all activities that are approved or performed in association with a BSRA are eligible for the state's Voluntary Cleanup Tax Credit (VCTC). Only costs incurred and paid that are integral, necessary and required for site rehabilitation are eligible for the VCTC. "Site rehabilitation" means the assessment of site contamination and the remediation activities that reduce the levels of contaminants at a site through accepted treatment methods to meet the cleanup target levels established for that site. Nothing contained herein is intended to limit the VCTC otherwise available to the PRFBSR under applicable law. General information about the VCTC Program is available at http://www.dep.state.fl.us/waste/categories/vctc/default.htm. For specific questions regarding the VCTC Program, please contact the FDEP's Bureau of Waste Cleanup at (850) 245-8927.

9. *ADVISORY COMMITTEE*

Figure 4.4 Portions of model of a Brownfields agreement from Florida Department of Environmental Protection.

The PRFBSR shall establish an advisory committee pursuant to the requirements of §376.80(4), F.S., for the purpose of improving public participation and receiving public comments on rehabilitation and redevelopment of the brownfield area, future land use, local employment opportunities, community safety, and environmental justice. However, if an appropriate local advisory committee already exists in the designated area, this committee may be used for requesting public participation and for the purposes of complying with this paragraph.

The PRFBSR shall provide the advisory committee a copy of the final proposed draft BSRA and a copy of the executed BSRA. When the PRFBSR submits a site assessment report or the technical document containing the proposed course of action following site assessment to the Department or the local pollution control program for review, the PRFBSR shall hold a meeting or attend a regularly scheduled meeting to inform the advisory committee of the findings and recommendations in the site assessment report or the technical document containing the proposed course of action following site assessment.

The names, addresses, and contact numbers for all advisory committee members are included as ***Attachment G****.*

10. *INDEMNIFICATION*

The PRFBSR shall save and hold harmless and indemnify the Department against any and all liability, claims, judgments or costs of whatsoever kind and nature for injury to, or death of any person or persons and for the loss or damage to any property resulting from the use, service, operation or performance of work under the terms of this BSRA and from the negligent acts or omissions of the PRFBSR or its employees, agents, contractors, subcontractors, or other representatives, to the extent allowed by law.

11. *PROFESSIONAL LIABILITY INSURANCE*

Any professional engineer or professional geologist providing professional services relating to site rehabilitation program tasks must maintain professional liability insurance coverage of at least $1 million per claim and $1 million annual aggregate in accordance with §376.80(8), F.S.

12. *LIABILITY PROTECTION*

The liability protection provided under §376.82 F.S., shall become effective upon execution of this BSRA and shall remain effective, provided the PRFBSR complies with the terms of this BSRA.

13. *FAILURE TO COMPLY*

If the PRFBSR fails to comply with the provisions of this BSRA, the Department will notify the PRFBSR in writing of any breach of this BSRA. The PRFBSR will have 90 days from receipt of the letter from the Department to return to compliance or to The 90-day grace period does not apply if an imminent hazard exists at the site. If such imminent hazard exists, the PRFBSR shall act immediately to abate the hazard. If the project is not returned to compliance with this BSRA and a modification cannot be negotiated, then the immunity provisions of §376.82, F.S., are revoked.

14. *DELAY*

Figure 4.4 Portions of model of a Brownfields agreement from Florida Department of Environmental Protection.

If any event occurs that does not result in a breach of this BSRA, but causes delay or the reasonable likelihood of delay in the achievement of the requirements of this BSRA, then the PRFBSR shall have the burden of proving that the delay was or will be caused by circumstances beyond the reasonable control of the PRFBSR that could not have been overcome by due diligence. Upon occurrence of the event, PRFBSR shall, within 7 days, notify the Department orally and in writing of the anticipated length and cause of the delay, the measures taken or to be taken to prevent or minimize the delay, and the timetable by which PRFBSR intends to implement these measures. However, if an imminent hazard exists, the PRFBSR shall act immediately to abate the hazard.

If the parties can agree that the delay or anticipated delay has been or will be caused by circumstances beyond the reasonable control of the PRFBSR, the time for performance hereunder shall be extended for a period equal to the delay resulting from such circumstances, or 90 days if the delay results in a breach of this BSRA, unless circumstances warrant more time in the opinion of the Department. A letter from the Department to the PRFBSR accepting or, if necessary, modifying the extension request shall confirm such agreement.

(a) *The PRFBSR shall adopt all reasonable measures to avoid or minimize any delay. Failure of the PRFBSR to comply with the notice requirements of this paragraph shall constitute a waiver of the right to request an extension of time for complying with the requirements of this BSRA. Increased costs of performance of the terms of this BSRA shall not be considered circumstances beyond the control of the PRFBSR.*

(b) *If the Department and PRFBSR cannot agree that any delay in the achievement of the requirements of this BSRA, including failure to submit any report or document, has been or will be caused by circumstances beyond the reasonable control of the PRFBSR, the PRFBSR may seek an administrative hearing or judicial determination of the issue pursuant to the provisions in* ***Paragraphs 22 and 23****.*

15. *IMMINENT HAZARD*

Nothing herein shall be construed to limit the authority of the Department to undertake any action in response to, or to recover the costs of responding to, conditions at or from the real property described in ***Attachment A*** *that require the Department to take action to abate an imminent hazard to the public health, welfare or the environment.*

16. *RELEASE OF LIABILITY*

Upon successful completion of this BSRA, the PRFBSR and his or her successors and assigns, shall be relieved from further liability for remediation of the real property described in ***Attachment A*** *to the Department and third parties and of liability in contribution to any other party who has or may incur cleanup liability for the real property described in* ***Attachment A****.*

This release of liability is subject to the reopener provisions of §376.82(3), F.S.

17. *GOVERNING LAW*

This BSRA has been delivered in the State of Florida and shall be construed in accordance with the laws of Florida and any applicable local regulations. Wherever possible, each provision of this BSRA shall be interpreted in such manner as to be

Figure 4.4 Portions of model of a Brownfields agreement from Florida Department of Environmental Protection.

effective and valid under applicable law. If any provision of this BSRA shall be prohibited or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provision or the remaining provisions of this BSRA. Any action hereon or in connection herewith shall be brought in Lee County, Florida.

18. *SUBMITTALS*

The PRFBSR shall submit two hard (paper) copies or one hard copy and one electronic (digital) copy of any certifications or documentation required in ***Paragraph 6*** *("Site Contractor") above, and all data, reports, responses, addenda, or modifications to reports and plans required by this BSRA to:*

Name
Brownfields District Coordinator
Florida Department of Environmental Protection

The Department encourages the submittal of documents for review in an electronic format rather than the submittal of paper copies. All electronic copies of documents shall be in the format listed in Section 8 of the Instructions and attached as ***Attachment H****. Time frames for the Department's review of technical reports and plans and submittal of documents by the PRFBSR shall be governed by the attached schedule (see* ***Attachment B****), incorporated herein. After final Department approval of each report or plan, an electronic copy shall be submitted to the Department within 30 days. The electronic copy of the report shall be submitted on Compact Disc (CD) for archiving purposes in the format listed in* ***Attachment H****.*

19. *DOCUMENT REVIEW*

During the cleanup process, if the Department fails to complete the review of a technical document within the time frame specified in this BSRA, with the exceptions of requests for "no further action," "monitoring only proposals," and feasibility studies, which must be approved prior to implementation, the PRFBSR may proceed to the next site rehabilitation task. However, the PRFBSR does so at its own risk and may be required by the Department to complete additional work on a previous task.

20. *ASSIGNMENT*

The PRFBSR shall not assign any rights or responsibilities under this BSRA to any other party without the written consent of the Department and the local government with jurisdiction over the real property described in ***Attachment A.*** *However, the Department shall not withhold its consent to such an assignment if: (a) the proposed assignee meets all of the eligibility criteria under §376.82, F.S.; (b) the proposed assignee has agreed, in writing, to assume all obligations of the PRFBSR under the terms of this Agreement; and (c) the assignment of PRFBSR obligations under any agreement with the local government with jurisdiction over the real property has been approved, in writing, by the local government.*

21. *WAIVER*

By entering into this BSRA, the PRFBSR waives its right to challenge the contents of this BSRA in an administrative hearing afforded by §120.569 and §120.57, F.S., or an appeal afforded by the terms of §120.68, F.S. This BSRA does not deny the PRFBSR a right to challenge the Department's actions taken pursuant to this BSRA. No delay or failure to exercise any right, power or remedy accruing to either party upon breach or default by either party under this BSRA, shall impair any such right, power or remedy of either party;

Figure 4.4 Portions of model of a Brownfields agreement from Florida Department of Environmental Protection.

nor shall such delay or failure be construed as a waiver of any such breach or default, or any similar breach or default thereafter.

22. *EFFECTIVE DATE AND ADMINISTRATIVE HEARING*

*This BSRA (Order) is final and effective on the date of execution unless a timely petition for an administrative hearing is filed under §§120.569 and 120.57, F.S., within **21** days after the date of execution. Upon the timely filing of such petition, this BSRA will not be effective until further order of the Department. The liability protection for the PRFBSR pursuant to §376.82(2), F.S., becomes effective upon execution of the brownfield site rehabilitation agreement. The procedures for petitioning a hearing are set forth below.*

Persons other than the PRFBSR who are affected by this BSRA have the following options:

(a) *If you choose to accept the Department's decision regarding this BSRA, you do not have to do anything. This BSRA is final and effective 21 days after the date of execution.*

(b) *If you choose to challenge the Department's decision, you may do the following:*

(i) *File a request for an extension of time to file a petition for hearing with the Agency Clerk of the Department in the Office of the General Counsel at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000 within **21** days of receipt of this BSRA; such a request should be made if you wish to meet with the Department in an attempt to informally resolve any disputes without first filing a petition for hearing.*

Or

(ii) *File a petition for administrative hearing with the Agency Clerk of the Department in the Office of the General Counsel at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000 within **21** days of receipt of this BSRA.*

Please be advised that mediation of this decision pursuant to §120.573, F.S., is not available.

How to Request an Extension of Time to File a Petition for Hearing:

*For good cause shown, pursuant to Rule 62-110.106(4), F.A.C., the Department may grant a request for an extension of time to file a petition for hearing. Such a request shall be filed with (received by) the Agency Clerk of the Department in the Office of the General Counsel at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, within **21** days of receipt of this BSRA. Petitioner shall mail a copy of the request to the PRFBSR at the time of filing. Timely filing a request for an extension of time tolls the time period within which a petition for administrative hearing must be made.*

How to File a Petition for Administrative Hearing:

A person whose substantial interests are affected by this BSRA may petition for an administrative proceeding (hearing) under §§120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed with (received by) the Agency Clerk of the Department in the Office of the

Figure 4.4 Portions of model of a Brownfields agreement from Florida Department of Environmental Protection.

*General Counsel at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, within **21** days of receipt of this BSRA. Petitioner shall mail a copy of the petition to the PRFBSR at the time of filing. Failure to file a petition within this time period shall waive the right of anyone who may request an administrative hearing under §§120.569 and 120.57, F.S*

Pursuant to §120.569(2), F.S., and Rule 28-106.201, F.A.C., a petition for administrative hearing shall contain the following information:

1. The name, address, and telephone number of each petitioner; the name, address, and telephone number of the petitioner's representative, if any; the PRFBSR's name and address; the Department's Brownfield Area and Brownfield Site Identification Numbers; and the name and address of the Brownfield Site;

2. A statement of when and how each petitioner received notice of the Department's action or proposed action;

3. An explanation of how each petitioner's substantial interests are or will be affected by the Department's action or proposed action;

4. A statement of the disputed issues of material facts, or a statement that there are no disputed facts;

5. A statement of the ultimate facts alleged, including a statement of the specific facts the petitioner contends warrant reversal or modification of the Department's action or proposed action;

6. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the Department's action or proposed action, and

7. A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the Department to take with respect to the Department's action or proposed action.

This BSRA is final and effective on the date of execution. Timely filing a petition for administrative hearing postpones the date this BSRA takes effect until the Department issues either a final order pursuant to an administrative hearing or an Order Responding to Supplemental Information provided to the Department pursuant to meetings with the Department.

23. *JUDICIAL REVIEW*

*Any party has the right to seek judicial review of this BSRA under §120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the Agency Clerk of the Department in the Office of the General Counsel at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice of appeal must be filed within **30** days after this BSRA is filed with the clerk of the Department (see below).*

24. *CONTACTS FOR GENERAL AND LEGAL QUESTIONS*

Any questions about the content of this BSRA, the Department's review of the BSRA, or technical questions should be directed to the Department's District Brownfields Coordinator at:

Figure 4.4 Portions of model of a Brownfields agreement from Florida Department of Environmental Protection.

References

1. E 1903 *Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process*, ASTM 1997

2. E 1527 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM 1997

3. Technical & Professional Training *Phase II Environmental Assessment Process*, ASTM 1999

PART TWO

Chapter 5

Work Plans

In this chapter, we will expand our discussion of contracting issues, which we introduced in the previous chapter. We will focus our attention on work plans, and how they are incorporated into the contractual relationship of Phase II ESAs. We will discuss:

- **What is a work plan**
- **Principles of work plan development**
- **Identifying site limitations**
- **Review of existing information**
- **Potential distribution of contaminants**
- **Sampling program**
- **Health and safety plan**
- **Chemical testing**
- **Quality assurance and quality control procedures**

What is a Work Plan?

Articulation of the scope of work

A work plan for a Phase II Environmental Site Assessment (ESA) is an articulation of those elements partially described in Section 7 of ASTM E 1903 [1], on Developing the Scope of Work. Work plans are generally included in the development of the scope, and thus comprise one of the first components of Phase II ESAs. The work plan describes how the recognized environmental conditions (RECs) identified in the Phase I ESA will be investigated to determine whether there has been a release of hazardous substances or petroleum products at the subject property.

Generally required with regulatory ESAs

Formalized work plans are generally a standard requirement in connection with all investigations under the authority of CERCLA and RCRA. All of the Brownfields programs also fall into this category. The regulatory agency usually needs to approve an investigation work plan prior to implementation of the investigation by the responsible party. The idea is to ensure that the scope of the investigation meets the expectations of the agency, as well as, the responsible party and is consistent with the principles of the National Contingency Plan.

More detailed than proposals or contracts

The work plan is normally much more detailed than typical scope of service agreements that are included in contracts or proposals. A proposal usually describes the scope of services in just enough detail to help the user understand what they're paying for. Many users do not require, or even want to see, the detailed methodologies of sampling and testing procedures that the environmental professional (EP) proposes to use to complete the Phase II ESA. Users generally assume that the professional will follow "industry standards" and hope that the scope of work is just enough, no more or no less, than that required to satisfy their objective. For this reason, many Phase II ESAs may not include detailed work plans, and the contracts and proposals may be sufficient to outline the Phase II ESA activities. The user's needs determine whether detailed work plans are going to be included in the Phase II ESAs.

Users may not want this level of detail

Work plans usually include a detailed description of every increment of a given work task such as the specific sampling procedure and equipment, media to be sampled, location of samples, rationale for all of the activities, sample handling, labeling and transportation procedures, field and laboratory testing methods, QA/QC measures for every step, and even contingencies in the event that unanticipated deviations or limitations are encountered along the way. It's understandable why users aren't automatically furnished with all of this detail—they're as likely to get confused and frustrated as they are to appreciate the detail.

EPs should discuss advantages of work plans with users

A Phase II ESA in connection with a commercial property transaction will often not involve any regulatory agency. However, the same process of developing a work plan that evolved under CERCLA and RCRA may be of value in a commercial property assessment. If the Phase II ESA confirms the presence of hazardous substances or petroleum products under conditions that represent a release, the regulatory agency will likely become involved. Following the protocol of a work plan will help support the agency's acceptance of the Phase II ESA results, thus reducing the risk of having to duplicate the original work effort of the Phase II ESA. For this reason the EPs may want to discuss the advantages of work plans with users and allow the user to make the choice.

Often a work plan is furnished as a separate document following acceptance of a proposal/contract. Most environmental professionals consider preparation of a work plan to be more involved than a scope of work outline for a proposal.

Principles of Work Plan Development

The principles of work plan development are the same principles that the EPs must consider when proposing the initial scope of Phase II ESA to the client. Many of the issues addressed in the previous chapter on contracting are applicable to work plans.

EPs must develop an understanding of users' needs

The first task at hand is for the EP to develop a thorough understanding of the user's Phase II ESA objectives. Will all of the RECs identified in the Phase I ESA be assessed, or are only certain RECs going to be subject to further inquiry? Is the user primarily interested in achieving a level of *due diligence* that will satisfy the innocent landowner defense, or are business risks or transactional negotiations motivating the Phase II ESA? What is the schedule? What is a reasonable budget? The user's objectives will bear on the seven main tasks identified by E 1903 that are required in developing the scope of the work and essential components of work plans.

For example, a Phase I ESA identified two RECs: potential groundwater contamination on the subject property that migrated from an adjoining petroleum release site, and potential soil contamination from lead that may have originated from past battery recycling activities on the property. If the user is planning on redeveloping the property, soil contamination will be a primary concern, because earthwork activities will disturb the soil. However, because the groundwater is relatively deep it is unlikely to materially affect the redevelopment. Based on the user's risk tolerance and the redevelopment plans, it may be appropriate for the Phase II ESA to focus on soil impacts, not groundwater. The work plan will address soil investigation methods and procedures, not groundwater investigation.

EPs must consider users' data quality objectives

The EPs must also consider the users' data quality objectives. Data quality objectives for a Phase II ESA are qualitative and quantitative statements that are intended to clarify the investigation objectives, define the most appropriate type of data to collect, determine the appropriate locations from which to collect the data, and specify tolerable limits on decision errors. Objectives (decisions) relating to regulatory thresholds for contaminant concentrations in soil and water, for residential or industrial land uses, or to what's acceptable in terms of contaminant migration within or outside of property boundaries are examples of data quality objectives. Meaningful data will enable the user to compare the results to those conditions that will dictate key decisions relating to the Phase II ESA and the property.

Section 7 of E 1903 assumes that the user's objectives have already been established and goes on to identify seven tasks that constitute development of the scope of work. If the user requests or requires a work plan, these tasks form the basis on which the EP develops the document. Each task is briefly reviewed in the remainder of this chapter.

Task 1. Identifying Site Limitations

Anticipate physical and logistical constraints

The EP must anticipate potential physical or logistical constraints to conducting the Phase II ESA investigation. Planning soil borings on a property where the building occupies 100% of the ground surface will require special considerations above and beyond those for a vacant parcel. Planning on collecting surficial soils from a paved surface using hand utensils poses logistical difficulties. The point is to know the physical condition of the site and the logistics of access in advance, so that the investigation can be implemented with as little interference as possible. A preliminary site reconnaissance prior to work plan development is often helpful and may be required. Figure 5.1 demonstrates site limitations associated with being able to construct sampling wells in an area of active business activities.

Site limitations can also include logistics affecting the user's schedule and economic realities. Commercial real estate transactions are often governed by purchase agreements that specify deadlines for completing due diligence activities. Deadlines are a reasonable expectation, and can greatly affect what can and cannot be accomplished in a Phase II ESA investigation. Likewise, the cost of a Phase II ESA must be proportional to the value of the property. Section 4.2.2 of E 1903 articulates this principle well.

Figure 5.1 Site logistical and physical limitations.

Task 2. Review of Existing Information

Review records to maximize value of Phase II ESA

Besides the Phase I ESA report, there may be other readily ascertainable records, reports, or documents that will help design an investigation that will maximize the usefulness of the data obtained. The purpose of this task is to evaluate the types of chemicals associated with the RECs and their likely distribution on the property. It is often helpful to refer back to the Conceptual Site Model. The conceptual site model forms the basis of Phase II investigation and uses the existing information to build the initial understanding of the property.

If not already done in the initial ESA, a detailed evaluation of available geological information should be completed, and the results incorporated into the work plan. Reliable information on the soil or bedrock types, stratigraphy, depth to groundwater, and groundwater flow direction will become essential for the EP in selecting sampling locations and evaluating contaminant migration routes.

Special research into the likely chemical constituents associated with the target RECs, including breakdown compounds, is usually required so that the appropriate testing parameters and methods can be proposed. This is an example of where the development of the work plan becomes a professional work effort in itself, potentially requiring a significant amount of research effort.

Task 3. Potential Distributions of Contaminants

Consider contaminants and migration

Once the likely contaminants are identified, their overall distribution on the property, including the various media (air, soil, surface water, groundwater, wastes, structures), fate, and transport characteristics must be assessed. If the point source was identified, what are the likely dispersion mechanisms? Could the same contaminants have been released over multiple locations on the property? Are the contaminants highly soluble, and therefore likely to leach downwards to groundwater? Are vapors likely to be produced, and if so, are they lighter or heavier than air? Are underground utilities likely to affect the movement of contaminants? Could dust in the buildings be contaminated? This task, in combination with Tasks 1 and 2, leads to the selection of the media, frequency, locations, and methods for sampling and testing, Task 4. It is also important to consider the reliability and the representativeness of the data. This is especially important with soil sampling, because this media is not necessarily homogeneous and the laboratory result is from a miniscule part of the property under investigation. The concept is demonstrated in Figure 5.2.

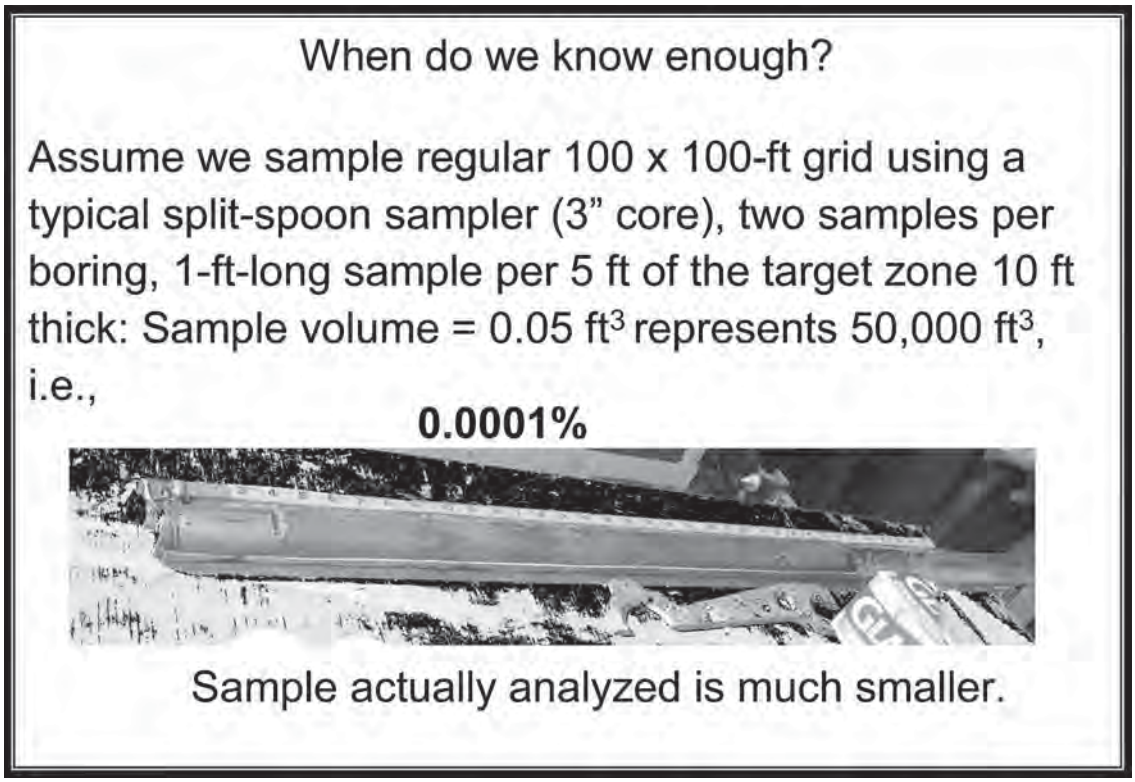

Figure 5.2 Soil sampling representativness. Provided by Jaroslav Solc.

Task 4. Sampling Program

Describe sampling programs

The sampling program articulates the assessment activities that are proposed for the specific media to be sampled. Typical activities include soil borings or push probes, installation of groundwater monitoring wells or soil vapor probes, wipe samples, etc. For each type of sample/media the protocol for collection, from start to sample destination, should be addressed. This part of the work plan often draws on (and refers to) the extensive body of recognized industry or regulatory standard methods and procedures (EPA, State, ASTM) for the particular sampling method that is intended to be employed. References for many of these procedures and standardized methods are provided in Chapter 6 on assessment activities.

The sampling program must describe the rationale for the number and locations of samples to be collected. Is a random sampling strategy or grid system to be employed? For sites with general, area-wide contamination due to diffuse manufacturing, storage, or disposal practices, a sampling grid may be appropriate. The size of the grid must be small enough to address the known or suspected variability of the contaminant distribution at the site. For sites with specific areas of contamination, samples taken from the center of the suspected contamination zone may suffice. If the general extent of contamination is desired, additional samples taken at progressively larger distances from the center can be proposed.

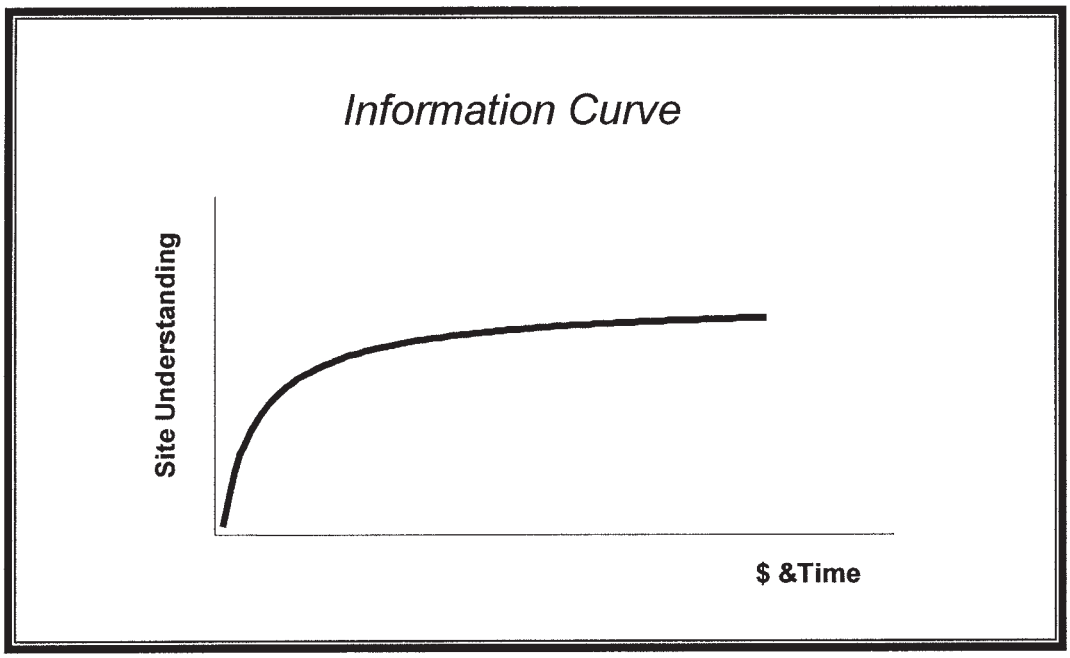

Figure 5.3 Information curve. Provided by Jaroslav Solc

The cost associated with sampling should be considered. Sampling requires mobilization of equipment and people, and cost per sample versus cost of multiple sampling iterations needs to be considered. The amount of sampling should be sufficient to meet the needs of the assessment with a reasonable degree of confidence. More sampling will not necessarily provide more useful information, as is demonstrated in the typical sampling information curve depicted Figure 5.3. The incremental amount of additional information about the site may not be worth the cost associated with the extra sampling.

The sampling plan must anticipate the chemical testing plan, as described later in Task 6. The test methods for specific media will often require special sampling procedures.

Certain quality assurance/quality control procedures may be addressed in the sampling program. Decontamination procedures, chain-of-custody for samples, written field documentation procedures, equipment or instrument calibration, and sample trip and equipment blanks and duplicates are all part-and-parcel to the sampling program.

Task 5. Health and Safety Plan

Prepare site specific H&S plan

The EP should prepare a site-specific health and safety (H&S) plan for the proposed investigation consistent with any other environmental investigation. The ASTM Standard does not purport to dictate what is or is not an appropriate safety plan. The H&S plan isn't normally subject to "regulatory approval" in the context of

work plan approval. The user is not in a position to approve the H&S plan. The H&S plan is expected to cover safety considerations for field work planned, and includes information needed in a health emergency situation, such as the location of the nearest medical facility. If a generic "boiler plate" plan is used, it should be tailored to the investigation being conducted and the nature of the potential hazards presented at the site. Many of the health and safety issues discussed in Chapter 7 of Part One of this manual are specifically applicable to work plan preparation.

Task 6. Chemical Testing

As with the sampling program, the chemical testing program will normally draw from the extensive body of standard test methods developed through EPA and state regulatory programs as well as ASTM or other recognized industry standards. The environmental professional must be knowledgeable of applicable test methods or work closely with laboratory personnel who are to develop an appropriate testing plan for the Phase II ESA.

Consider intended end-use

The chemical testing program works in concert with Tasks 3 and 4 as described above. Once the media and sample analytes (chemical constituents) are targeted, the specific test methods can be decided upon. The test methods, in turn, may dictate the precise sampling plan to be used.

The chemical testing must also consider the intended end-use of the resulting data, the user's data quality objectives, as well as any statutory, regulatory or policy framework. Are the detection limits appropriate for making final decisions relating to purchase, development, marketability, or other user objectives? What, if any, results must be reported to the regulatory agency?

Task 7. Quality Assurance and Quality Control Procedures

Ensure reliable technically sound data

QA/QC procedures are necessary to ensure that reliable, technically sound data are obtained from the investigation. Documentation of the QA/QC procedures helps ensure that the data are acceptable and defensible in the event that third party or legal challenges are encountered.

QA/QC must be built into virtually every increment of the investigation. Calibration of instruments, cleaning and decontamination of sampling equipment, sample chain-of-custody documentation, and senior technical review of written reports are all examples of QA/QC procedures. Following written standard operating procedures is a means of implementing QA/QC. Testing duplicate samples, trip blanks, and laboratory blanks are common QA/QC measures for laboratory analyses.

If subcontract drilling and laboratory companies are used, the EP should ensure that the subcontractors furnish a copy of their written QA/QC program for the specific services that they will be furnishing. Credentials, including certifications and licenses held by subcontractors, should be evaluated. A good QA/QC measure on the part of users is to evaluate the credentials of all the EPs prior to entering into a contract.

Documentation of the Work Plan

Detail provided depends on the transaction

The work plan can be presented to the user verbally, as a scope of services in a proposal, or as a separate written work product.

If presented verbally, the environmental professional should make clear to the user that written documentation of the work plan should be maintained in the project file if the user's objective includes qualifying for the innocent landowner defense. If no written documentation is available, a basis for having performed all appropriate inquiry in accordance with good commercial and customary practice may not be defensible. Documentation of the work plan development process does not need to be "on the record" for it to exist. The contract between the user and the environmental professional should address ownership and maintenance of the file documentation to ensure that it is retrievable in the future, if necessary.

A work plan can be properly developed without furnishing all of the detail in written, on the record form. This may be the desired approach if the user wants the scope of services developed as a proposal (in other words, on the environmental professional's own time). It is reasonable for the EP to not want to disclose all the rationale, standard operating procedures, and specialized investigative techniques contemplated for developing a scope of services in the event that they are not selected to implement the work plan. It is also understandable that many users do not wish to see all of the detail that goes into a full work plan. They may not understand the details, and can get lost in the text and fail to understand the basic nature of the work that is being proposed. Figure 5.4 lists components that should be considered for inclusion in a work plan.

- *An accurate and legible site map clearly showing the property boundary and locations of prominent and relevant site features – both past and present, such as buildings, walls and fences, tanks, pipelines, waste storage areas, utilities (above and below ground), ponds, paved and green areas, and any other relevant features. Features on adjoining properties may be required. It is also helpful if the map shows topographic contours. The map should have a north arrow, key to symbols if applicable, and a bar scale.*
- *A map depicting locations and depths of proposed borings, wells, sampling locations, test pits or any other areas of investigation.*
- *A list of the media and parameters to be investigated.*
- *A detailed description of the sampling protocol and analytical methods to be used, and the rationale for the selection of the specified methods.*
- *A description of the QA/QC measures to be used to ensure that data obtained by the sampling and testing techniques are reliable, repeatable and representative of conditions at the property.*
- *A Health and Safety Plan for the specific property and parameters to be investigated.*
- *A proposed schedule of the field work for various stages of the investigation, the estimated date when analytical results are expected, and the estimated date(s) of verbal and/or written results.*

Figure 5.4 Components of a work plan.

The user may have to compensate EPs for preparation of a detailed work plan

Many EPs will not undertake the development of a full work plan without compensation. They recognize that development of a high quality work plan is rendering a professional service that will likely result in an overall savings in environmental costs and reduced risk exposure to the user. A high level of expertise is required to know how to design a Phase II ESA that will achieve the user's objectives and pass regulatory muster (if necessary).

Figure 5.5 is a partial example of a work plan extracted from case study materials used in the ASTM Phase II ESA Technical & Professional Training Program [2]. It demonstrates many of the issues discussed in this chapter.

INVESTIGATION WORK PLAN
WOOD TREATING FACILITY

JANUARY 14, 1999

Prepared for:

Minnesota Pollution Control Agency
And
Minnesota Department of Agriculture

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Figure 5.5 Portion of a work plan (adapted from ASTM Phase II TPT training course).

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Figure 5.5 Portion of a work plan.

1.0 INTRODUCTION

Peer Environmental & Engineering Resources, Inc. (PEER) has prepared this work plan for an environmental investigation at a wood treating facility site located in Minnesota. The work plan has been prepared for the Minnesota Pollution Control Agency (MPCA) and Minnesota Department of Agriculture (MDA) as a requirement of the Superfund Investigation and Remediation Request for Proposal (RFP) dated December 7, 1998. This work plan describes the project approach and technical scope of work for the site investigation.

2.0 BACKGROUND INFORMATION

2.1 EXISTING SITE INFORMATION

The following information is available regarding the wood treating facility site:

Facility Operations

- The site was an active wood treating facility from about 1930.
- Most of the old structures and buildings are still in place.
- All of the products and wastes have been removed from the buildings and tanks.
- The carrier solvent was reportedly fuel oil.
- The wood treating preservative or preservatives used at the site were not provided.

Geologic/Hydrogeologic Setting

- Site soils consist of sand and silt from the ground surface to a depth of 40 feet.
- The water table is located at a depth of approximately 20 feet.
- A thick clay layer is located at a depth of 40 feet.
- A sandstone aquifer is located beneath the clay layer at a depth between 60 and 80 feet.

Figure 5.5 Portion of a work plan.

Potential Receptors

- The site is located within a commercial area of a city.
- A public water supply is available in the vicinity of the site.
- The public water supply source is not threatened by the potential releases at the site.
- There are lakes within one-half mile of the site that are used for fishing and recreation.
- Utilities typical of urban areas are present.

A site map depicting facility components and relevant site features is included as Figure 1

2.2 WOOD TREATMENT FACILITY OVERVIEW

Overview

Contaminant types at wood treatment facilities depend largely on the principal wood treating preservatives used. The most commonly used wood treating preservatives are:

- Creosote
- Pentachlorophenol (PCP)
- Chromated copper arsenate (CCA)

Wood treating facilities commonly used these preservatives either alone, in combination with each other, or mixed with petroleum hydrocarbon carriers (e.g., fuel oil). Historically, facilities operating in the first half of this century primarily used the organic based preservatives in their processes (creosote, PCP). However, the wood treating industry has gradually turned to CCA and other water soluble inorganic chemicals over the last several decades.

Contamination at Wood Treating Facilities

Contamination at wood treating facilities may be found in the form of pure product, or in sludge, soil, sediments, surface waters, or ground water. Pure product, if present may exist in the soil and/or ground water as Light Non-Aqueous Phase Liquids (LNAPLs or "floaters") and Dense Non-Aqueous Phase Liquids (DNAPLs or "sinkers").

Figure 5.5 Portion of a work plan.

The following table summarizes contaminant types and compounds typically found in soil or ground water at wood treating facilities:

Contaminants of Concern at Wood Treating Facilities

Chemical Class	Specific Compounds
Dioxins/Furans	Dioxin Dibenzofuran Furan
Halogenated Phenols	Pentachlorophenol Tetrachlorophenol
Semi-Volatile Organic Compounds (SVOCs) (non-halogenated)	2-Methylnaphthalene Chrysene Acenaphthene Fluoranthene Acenaphthylene Fluorene Anthracene Indeno(1,2,3-cd)pyrene Benzo(a)anthracene Naphthalene Benzo(a)pyrene Phenanthrene Benzo(b)fluoranthene Pyrene Benzo(k)fluoranthene 2,4-Dimethylphenol 2-Methylphenol 4-Methylphenol Benzoic acid Di-n-octyl-phthalate N-nitrosodiphenylamine
Volatile Organic Compounds (VOCs) (non-halogenated)	Benzene Toluene Ethylbenzene Xylene
Metals	Arsenic Cadmium Chromium Copper Lead Zinc

Figure 5.5 Portion of a work plan.

3.0 DATA QUALITY OBJECTIVES

3.1 OVERVIEW

Data quality objectives (DQOs) for the site investigation are presented in this section. DQOs are qualitative and quantitative statements that are developed through a formal seven-step process. These statements are intended to clarify the investigation or study objectives, define the most appropriate type of data to collect, determine the appropriate conditions from which to collect the data, and specify tolerable limits on decision errors (i.e., specify the quantity and quality of data needed to support the decisions).

The DQOS presented herein are considered preliminary. They may need to be modified based on input from the MPCA and MDA, both major stakeholders in the project, and from other potential interested parties.

3.2 PROBLEM STATEMENT

Problem Description

The wood treatment facility site has no known or documented soil or ground water contamination, but has many site features and areas that are potential sources of contamination. The primary study objective for the site is to determine if the historic wood treating activities have impacted soil or ground water at the site and off site, and to evaluate the potential for any identified impacts to adversely affect both human and environmental receptors.

Specific site areas or features that may be sources of potential soil or ground water contamination are shown on Figure 1 and include:

- Exterior above ground chemical storage tanks.
- Exterior dip tanks.
- Exterior drying bed.
- Exterior wood storage area(s).
- Processing building.

Figure 5.5 Portion of a work plan.

The following additional areas or items of potential concern are not shown on Figure 1, but can be reasonably inferred to exist based on the available information:

- Drainage ditches or areas for directing or accumulating surface water.
- Sanitary and storm sewer lines and other underground utilities.

The contaminants of potential concern at the site are not specifically known but may include creosote, PCP, and CCA. It is also assumed that petroleum carrier solutions were used at the site in conjunction with the creosote and PCP processes.

Based on the site features depicted on Figure 1 and the known period of site operations (1930 to present) the potential contaminants of concern at the site are assumed to include the majority of compounds presented in Section 2.2.

The general categories for the potential contaminants of concern for soil are:

- SVOCs (includes polycyclic aromatic hydrocarbons (PAHs) and phenols)
- Metals (primarily chromium, copper, and arsenic)
- Dioxins, furans, and polychlorinated biphenyls (PCBs)
- VOCs (primarily petroleum-related compounds)
- Total petroleum hydrocarbons (TPH) - (primarily fuel oil range components)

The general categories for the potential contaminants of concern for ground water are:

- SVOCs (including PAHs and phenols)
- Metals (primarily chromium, copper, and arsenic)
- VOCs (primarily petroleum-related compounds)
- TPH (primarily fuel oil range components)

Figure 5.5 Portion of a work plan.

Available Resources/Relevant Deadlines

It is assumed that the problem solution will involve implementation of a thorough site soil and ground water investigation. The investigation will likely include: subsurface investigation through the advancement of borings and probes and installation of monitoring wells; soil and ground water sampling and laboratory analytical testing for potential contaminants of concern; performance of a utility assessment and survey; and completion of a sensitive receptor survey. Resources to implement the investigation will likely include:

- Drill rig.
- Sampling probe rig.
- Soil and ground water sampling equipment.
- Field screening equipment.
- On-site mobile laboratory.
- Off-site fixed base laboratory.

There are no known deadlines for completing the investigation. However, it is assumed that the MPCA and MDA will want the investigation completed in a timely and cost effective manner.

There are no known budget constraints for the investigation. It is assumed that once the work plan design has been optimized, the MPCA and MDA have sufficient budget to complete the investigation work needed to adequately address the issues addressed in the site problem statement.

Project Planning Team

The "core" project planning team will include PEER's designated project manager, and representatives from the MPCA and/or MDA. If deemed appropriate by the MPCA or MDA, the site owner or additional potential responsible parties could also be added to the team.

Figure 5.5 Portion of a work plan.

The "core" team members will solicit input from other technical resources including proposed mobile or fixed based laboratory personnel, Geoprobe© or drilling contractor personnel, or additional regulatory or PEER staff with specific relevant experience related to the project approach (e.g., hydrogeologists, engineers, toxicologists, risk assessors).

All final project planning decisions will be made by the Project Manager assigned by the MPCA or MDA.

3.3 DECISION STATEMENT IDENTIFICATION

Principal Study Question

The principal study question is: *Have historic wood treating activities impacted soil or ground water at the site above regulatory thresholds which may indicate a potential for adverse impacts to human or environmental receptors?*

Decision Statements

This section includes specific technical questions and related decision statements that have been formulated for the site. The decision statements define the anticipated minimum requirements and overall framework for the site investigation.

1. Has sufficient historical site information been gathered to adequately evaluate the types and locations of wood treating processes and chemicals used at the site?

   Decision Statement #1: Conduct historical site research to determine the types and locations of wood treating processes and chemicals used at the site.

2. Have operations related to the existing or previous above ground storage tanks caused contamination to soil or ground water at the site above levels of regulatory concern?

   Decision Statement #2: Determine the nature, magnitude and extent of soil or ground water contamination in the vicinity of the existing above ground storage tanks.

Figure 5.5 Portion of a work plan.

3. Have operations related to the existing or previous dip tanks caused contamination to soil or ground water at the site above levels of regulatory concern?

   Decision Statement #3: Determine the nature, magnitude and extent of soil or ground water contamination in the vicinity of the existing dip tanks.

4. Have operations related to drying tank caused contamination to soil or ground water at the site above levels of regulatory concern?

   Decision Statement #4: Determine the nature, magnitude and extent of soil or ground water contamination in the vicinity of the existing drying tank.

5. Have operations related to treated wood storage caused contamination to soil or ground water at the site above levels of regulatory concern?

   Decision Statement #5: Determine the nature, magnitude and extent of soil or ground water contamination in the vicinity of the treated wood storage area.

6. Have operations within the processing building caused contamination to soil or ground water at the site above levels of regulatory concern?

   Decision Statement #6: Determine the nature, magnitude and extent of soil or ground water contamination within and near the processing building.

7. Do surface water drainage ditches or on-site accumulation areas contain contaminated soil or sediment, or have caused contamination to soil or ground water at the site above levels of regulatory concern?

   Decision Statement #7: Determine if soil or ground water is impacted in the vicinity of existing or previous surface water drainage ditches or other low-lying areas.

8. Have sanitary and storm sewer lines, or other on-site utilities, acted as conduits for the spread of site contamination?

   Decision Statement #8: Identify the locations of on-site utilities that may be potential sources of soil or ground water contamination.

Figure 5.5 Portion of a work plan.

9. If present, are ground water impacts confined to the site or are they migrating off-site?

   Decision Statement #9: Determine if soil or ground water is impacts are confined on-site, or are potentially migrating off-site.

10. If ground water contamination is present, is the configuration of the subsurface clay layer at 40 feet affecting the fate and transport of the contaminated ground water?

    Decision Statement #10: Determine the geometry and configuration of the subsurface clay layer and evaluate whether it will potentially affect the fate and transport of ground water contamination.

11. If ground water contamination is present, is the plume stable indicating that natural attenuation of the contaminants may be occurring?

    Decision Statement #11: Determine if evidence of ground water plume stability is present in the site ground water

Decision Statement #1 pertaining to historical site information needs to be completed prior to any intrusive site investigation. The remaining decision statements will be addressed during implementation of the site investigation in the order presented.

3.4 DECISION INPUTS

In order to resolve each of the decision statements listed above, a unique set of information, or "decision inputs" will be required. Accordingly, the DQOs will differ from one decision statement to the next. These "decision inputs" for the eleven decision statements, including required information and collection methods, have been incorporated into the scope of work in Section 4.0.

Figure 5.5 Portion of a work plan.

3.5 STUDY BOUNDARIES

The study boundaries of the site investigation are currently defined as the legal site boundaries or property lines. Future investigation activities may be performed beyond the current study boundaries, if results of the site investigation suggest that contamination originating at the site has migrated beyond the current study boundaries.

No temporal boundaries are proposed, excepting inclement weather. PEER assumes that the MPCA and MDA will request that the investigation be completed in a timely and cost effective manner.

3.6 DECISION RULES

Decision rules for the preliminary site investigation are primarily related to the nature, extent and magnitude of the suspected site contaminants, whether non-aqueous phase liquids (NAPLs) are present and in what form, the site's hydrogeologic characteristics, and the need for additional investigation. The decision rules have been incorporated into the body of the scope of work in Section 4.0, where appropriate.

3.7 TOLERABLE LIMITS ON DECISION ERRORS

A primary purpose of the preliminary site investigation is to determine the risk posed to human health and the environment from potential site contamination. Therefore, a low tolerance for decision error exists, and the majority of samples will be analyzed at a fixed-base laboratory.

Figure 5.5 Portion of a work plan.

3.8 OPTIMIZATION OF DATA COLLECTION DESIGN

Both qualitative data and court defensible/quantitative data will be required in order to meet the DQOs for the site investigation. A fixed-base laboratory, providing standard turnaround time (typically two to three weeks), will be the primary analytical tool used in order to obtain quantitative data. This quantitative data will be used to guide future phases of the investigation, including risk assessments, fate and transport modeling, and evaluation of the soil leaching pathway. Specific details regarding data collection requirements are presented in the scope of work in Section 4.0. Specific analytical parameters, laboratory detection limits and reporting limits are provided in Attachment 2 to this Work Plan.

Colormetric field tests and mobile gas chromatographs provide real-time, qualitative data, and they may be used to guide the decision making process in the event that the field investigation progresses into subsequent phases.

4.0 SCOPE OF WORK

4.1 OVERVIEW

The scope of work for the site investigation is presented in this section. The overall project approach has been developed based on the available site information and the established DQOs, and is consistent with the guidelines presented in the MPCA's Risk Based Site Evaluation Manual.

The investigation will be conducted in two primary stages: 1) Preliminary Investigation and 2) Focused Additional Investigation. The scope of work for the Preliminary Investigation is well defined at this time and includes the following basic elements:

- Historical site research
- Sampling probe investigation
- Surface soil sampling
- Monitoring well installation
- Soil and ground water sampling and analysis
- Receptor risk evaluation

Figure 5.5 Portion of a work plan.

The preliminary investigation will be implemented in a manner designed to address all of the decision statements established during the DQO process (see Section 3.0).

Based on the results of the preliminary investigation, it may be necessary to complete focused additional investigation to evaluate issues that were not completely resolved during the preliminary investigation. The scope of work for the focused additional investigation will be determined based on the preliminary investigation results. Examples of potential focused additional investigation activities are addressed in Section 4.3.

4.2 PRELIMINARY SOIL INVESTIGATION

4.2.1 Task I – Pre-Investigation Activities

Overview

Prior to initiating the site investigation, the following pre-investigation activities will be performed:

- Phase I Environmental Site Assessment
- Site Reconnaissance
- Utility Information Review
- Pre-Investigation Submittals

The results of the pre-investigation activities will be used to optimize the investigation approach and locations. A description of the respective pre-investigation activities is presented in the following paragraphs.

Phase I Environmental Site Assessment

PEER will conduct a Phase I Environmental Site Assessment (ESA) of the wood treatment site that will be consistent in scope with guidelines established by the MPCA Voluntary Investigation and Cleanup (VIC) Program, as well as the ASTM Standards for Environmental Site Assessment (E1527-97). The primary purpose of the Phase I ESA is to obtain, review and summarize available information regarding the site or site operations that may be relevant to the proposed investigation. The Phase I will include the following:

Figure 5.5 Portion of a work plan.

- Review of readily available helpful documents.
- Historical land use research.
- Government records (regulatory agency) research.
- Interviews.
- Site reconnaissance.
- Phase I report preparation.

Helpful documents can include prior environmental or geotechnical investigation reports, appraisals, building records, site plans, or similar records that convey past and present land use activities and conditions.

Historical research will rely on standard sources of information that include aerial photographs, fire insurance maps and city directories. Other sources may also be used, such as city building department records, topographic maps, or specialized knowledge and information provided by others.

Government records will be obtained from the MPCA and/or commercial services to identify known and potential hazardous substance and petroleum releases on or near the sites. If sites of significant concern are identified, it may be appropriate to arrange for regulatory file reviews at the appropriate agency (usually the MPCA, but potentially other state or county agencies) to review the detailed documentation for those sites. PEER will also obtain and summarize available hydrogeologic information for each site to evaluate the soil types, depth to ground water, and potential contaminant migration pathways.

Interviews will be conducted with owners, occupants, government officials and others who may have special knowledge of the history and operations of the sites.

On site reconnaissance will be performed to visually and physically observe the site and structures for obvious evidence of environmental impacts or concerns.

A Phase I report will be prepared for the site to document the findings. The report will document what was done, our sources and our findings. Known or potential environmental impacts and issues will be discussed in detail. Recommendations for modifying the investigation approach presented in this work plan will be made if supported by the data.

Figure 5.5 Portion of a work plan.

Site Reconnaissance

A detailed site reconnaissance will be performed to evaluate existing conditions and confirm the locations of the proposed investigation activities. Observations will be made for evidence of soil staining or other obvious indications of potential soil contamination. In addition, overhead and underground utility locations will be confirmed.

The proposed investigation locations will be marked upon completion of the site reconnaissance. Any necessary modifications to the proposed investigation locations will be documented.

Utility Information Review

Public utilities will be located using the "Gopher One Call" system. Private utilities will be also located using site plan sheets (if available), or by a private utility locator service. The location, depths and construction of the identified utilities will be evaluated to determine if there is a potential for them to act as conduits for contamination migration.

Pre-Investigation Submittals

Pre-Investigation submittals will be prepared, as necessary, and submitted to the MPCA and/or MDA prior to initiating the site investigation. This will include a site specific Health and Safety Plan, and any other documents requested by the respective agency (e.g., QAPP, Contingency Plan).

4.2.2 Task II – Sampling Probe Investigation

Overview

The site has been divided into four areas for investigation purposes (see Figure 2). Each area is comprised of one or more site features that are potential sources of soil or ground water contamination at the site. For the preliminary investigation, this approach is believed to provide a reasonable spatial distribution of investigation locations, and is considerably more cost effective than investigating the individual potential sources separately.

Figure 5.5 Portion of a work plan.

Sampling probes will be advanced within three of the four targeted investigation areas (Areas 1, 2 and 3, Figure 2). Each of these areas are believed to have the potential for both shallow and deep soil contamination based on the anticipated site activities completed within each area.

Detailed methods and procedures for the activities presented in this section are presented in Attachment 1.

Probe Advancement and Elevation Control

The sampling probe investigation will include completion of both shallow and deep probes completed using truck-mounted hydraulic equipment. A total of 12 shallow probes and 5 deep probes will be completed, with soil and ground water samples collected from each for analytical testing.

The shallow probes will be completed to the depth of the water table, which is anticipated to occur at a depth of approximately 20 feet. The deeper sampling probes will be completed to the depth of the subsurface clay layer, which is anticipated to occur at a depth of approximately 40 feet. The anticipated probe locations are shown on Figure 2. The number, placement and completion depths for the probes were selected to provide adequate horizontal and vertical characterization of potential soil and ground water contamination within each area, and for the site as a whole.

The ground surface elevation will be surveyed to the nearest 0.01 foot at each probe location to provide vertical control for evaluating the geometry and configuration of the subsurface clay layer. The elevations will be tied into a permanent reference point established on or near the site.

Soil Sample Collection

Soil samples will be collected from the probes at continuous intervals for soil classification, field screening and sampling purposes. The soil samples will be screened in the field for organic vapors using a photoionization detector (PID) equipped with an 11.8 eV lamp, and will be visually examined for visual or olfactory indications of contamination.

Figure 5.5 Portion of a work plan.

Sampling probes will be advanced within three of the four targeted investigation areas (Areas 1, 2 and 3, Figure 2). Each of these areas are believed to have the potential for both shallow and deep soil contamination based on the anticipated site activities completed within each area.

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The ground surface elevation will be surveyed to the nearest 0.01 foot at each probe location to provide vertical control for evaluating the geometry and configuration of the subsurface clay layer. The elevations will be tied into a permanent reference point established on or near the site.

Soil Sample Collection

Soil samples will be collected from the probes at continuous intervals for soil classification, field screening and sampling purposes. The soil samples will be screened in the field for organic vapors using a photoionization detector (PID) equipped with an 11.8 eV lamp, and will be visually examined for visual or olfactory indications of contamination.

Figure 5.5 Portion of a work plan.

One equipment blank will be collected during each day of the investigation when ground water samples are collected from the sampling probes. The equipment blank will be collected by pouring laboratory grade water over and through a clean sampling probe screen and collecting the water in the appropriate sampling containers. The equipment blank will be analyzed for the same parameters as the investigative samples.

In addition, one trip blank sample that will be prepared by the laboratory will accompany each cooler with samples for VOC analysis. The trip blank will be analyzed by the laboratory for VOCs.

4.2.3 Task III – Monitoring wells

Overview

Eight ground water monitoring wells will be installed at the site as part of the preliminary site investigation, four shallow and four deep. Shallow and deep wells will be set as pairs (well nests). The shallow wells will be screened to intersect the water table and will be constructed with 10-foot long screens. The deep wells will be screened directly above the subsurface clay layer and will be constructed with 5-foot long screens. The primary objective of the monitoring wells is to preliminarily assess the nature, extent and magnitude of potential ground water contamination within the site boundaries, determine horizontal and vertical hydraulic gradients, ground water flow direction, and to evaluate if ground water contamination above levels of regulatory concern are potentially migrating off site.

The monitoring wells will be installed after review of the ground water analytical data obtained from the sampling probe investigation task. Preliminary monitoring well locations are shown on Figure 2. These locations may be modified based on the sampling probe investigation results.

Detailed methods and procedures for the activities presented in this section are presented in Attachment 1.

Figure 5.5 Portion of a work plan.

Installation Description

The wells will be constructed in accordance with the Minnesota Department of Health (MDH) Water Well Code under the direction of a licensed monitoring well contractor. Because of the types of contaminants suspected at the site, and the possibility of encountering free-phase product, the wells will be constructed with stainless steel screens and low carbon steel risers. The wells will be completed above grade with 6-inch diameter protective covers.

Well construction details for the proposed shallow and deep wells are illustrated in Attachment 3. The exact well screen depth will be dependent on field observations of actual ground water depths (shallow wells) and the actual depth of the clay layer (deep wells).

Development and Surveying

Following installation, the monitoring wells will be developed in accordance with MPCA guidelines. In addition, the top of riser and ground surface elevations will be surveyed to the nearest 0.01 foot. The elevations will be tied to the same datum used for the sampling probe elevation survey.

Monitoring Well Sampling

Two rounds of ground water samples will be collected from the wells. The first sampling round will be completed approximately one week following development. The second sampling round will be completed approximately three months after the first round. Methods and procedures for monitoring well sampling are included in Attachment 1.

Ground water samples collected from both rounds will be submitted for laboratory analysis as specified in Section 4.2.5.

Quality Assurance/Quality Control

During each round of monitoring well sampling, QA/QC samples collected will include a blind duplicate sample and an equipment blank. The duplicate sample will be collected using the same procedures that are used to collect the investigative samples and will be analyzed for the same parameters as the investigative samples.

Figure 5.5 Portion of a work plan.

The equipment blank will be collected by pouring laboratory grade water over and through clean ground water sampling equipment and collecting the water in the appropriate sampling containers. The equipment blank will be analyzed for the same parameters as the investigative samples.

In addition, one trip blank sample that will be prepared by the laboratory will accompany each cooler with samples for VOC analysis. The trip blank will be analyzed by the laboratory for VOCs.

4.2.4 Surface Soil Sampling

Overview

The treated wood storage area will be investigated to determine if the storage activities resulted in surface soil contamination (Investigation Area #4, Figure 2). The investigation approach for this area will consist of collecting two depth stratified soil samples at each of four designated locations.

Soil Sample Collection

The anticipated sample locations are shown on Figure 2. The locations were selected to give reasonable spatial coverage of the suspect area. If present, soil contamination in this area is anticipated to be relatively shallow. Consequently, the focus of the proposed investigation for this area is shallow soil.

Two soil samples will be collected from each location, a surface sample at 0 to 4 inches and a deeper sample at 20 to 24 inches. The surface sample will be collected using a trowel or appropriate hand equipment. The deeper sample will be collected using a hand auger, or if necessary, using the sampling probe rig. The samples will be submitted for laboratory analysis as specified in Section 4.2.5.

Methods and procedures for surface soil sampling, including the use of hand trowels and hand augers, are included in Attachment 1.

Figure 5.5 Portion of a work plan.

4.2.5 Task IV – Soil and Ground Water Sample Analysis

Overview

The proposed analytical testing parameters and methods for soil and ground water samples are presented in this section. The analytical testing will be performed by an independent laboratory approved by the MPCA and MDA.

Sampling Probe and Surface Soil Samples

Soil samples from the sampling probes will be submitted for a combination of the following laboratory analyses:

- SVOCs using United States Environmental Protection Agency (EPA) Method 8270 (includes PAHs and phenols).
- Metals using EPA Method 6010 (includes arsenic, chromium, copper, lead, and zinc).
- Dioxins and furans using EPA Method 8290 (selected samples only).
- PCBs using EPA Method 8082 (selected samples only).
- VOCs using EPA Method 8260.
- Total organic carbon (TOC) using ASTM method D2974 and soil classification by ASTM method D2487/2488 (minimum of three samples from each source area will be analyzed.
- Dry bulk density (one per area).
- pH (selected samples).

During the soil sampling activities, selected soil samples from source areas will be analyzed for dioxins, furans, and PCBs. In addition to analyzing the samples for the Chemicals of Potential Concern, selected soil samples will be analyzed for TOC, soil classification, dry bulk density, and pH. These analyses will be used to aid in risk assessment and to evaluate the soil leaching pathway and fate and transport.

Figure 5.5 Portion of a work plan.

Ground Water Samples from Probes

Ground water samples collected from the sampling probes will be submitted for the following analyses:

- SVOCs using EPA Method 8270 (including PAHs and phenols).
- Metals using EPA Method 6010 (includes arsenic, chromium, copper, lead, and zinc).
- VOCs using EPA Method 8260.

Ground Water Samples from Wells

Ground water samples collected from wells during both sampling rounds will be analyzed for the following parameters:

- SVOCs using EPA Method 8270 (including PAHs and phenols).
- Metals using EPA Method 6010 (includes arsenic, chromium, copper, lead, and zinc).
- VOCs using EPA Method 8260.
- Nitrate (selected samples).
- Soluble ferrous iron (selected samples).
- Sulfate (selected samples).
- Sulfide (selected samples).

Selected samples collected from both inside and outside the plume, will be analyzed for parameters to evaluate the occurrence of natural biodegradation and attenuation. In addition, dissolved oxygen, pH, Eh, conductivity, and temperature will be measured in the field from each well to evaluate natural biodegradation.

4.2.6 Task V – Receptor Risk Characterization

Overview

A receptor risk characterization will be completed on the soil and ground water analytical data obtained from the preliminary site investigation. The specific receptor pathways and tiered evaluation criteria are described in this section.

Figure 5.5 Portion of a work plan.

Soil-Human Health Pathway

The following describes the procedure to be used for evaluating the soil-human health pathway:

- The soil analytical data for the site investigation will be compared directly to established Tier 1 soil reference values (SRVs), which are based on a residential land use setting.
- Individual contaminants exceeding the Tier 1 SRVs will also be compared directly to the established Tier 2 SRVs, which are based on an industrial land use setting.

Tier 1 SRVs for all contaminants of potential concern at the site are included in Attachment 2-A. The comparison and evaluation of the data to the Tier 1 SRVs will be conducted in a manner consistent with the MPCA Risk Based Site Evaluation Manual.

Soil Leaching Pathway to Ground Water

The following describes the general procedure to be used for evaluating the soil leaching pathway to ground water:

- The soil analytical data for the site will be compared directly to established Tier 1 soil leaching values (SLVs).
- If deemed appropriate, Tier 2 SLVs may be calculated for individual compounds exceeding a Tier 1 SLV. The Tier 2 SLVs will be calculated using site specific data obtained during the preliminary investigation.

Tier 1 SLVs for all contaminants of potential concern at the site are included in Attachment 2-B. Comparison of the data to the Tier 1 SLVs, and calculations of Tier 2 SLVs will be conducted in a manner consistent with the MPCA Risk Based Site Evaluation Manual.

Site Utilities

The information obtained regarding site utility locations and construction will be reviewed to determine if they represent potential conduits for contaminant migration or organic vapor impacts.

Figure 5.5 Portion of a work plan.

Potential Off-Site Ground Water and Surface Water Receptors

As part of the preliminary site investigation data, an inventory of potential off-site human and environmental receptors will be made. The inventory will include:

- Identification of water wells within a one-mile radius of the site. The well inventory will be obtained by reviewing available well logs contained in the County Well Index database maintained by the Minnesota Geologic Survey and actual knowledge gained through the Phase I ESA.

- Identification of surface water bodies and wetlands located within a one-mile radius of the site.

The preliminary site investigation data will be reviewed to determine if the identified potential off-site ground water receptors are potentially at risk from the site contamination. Indications of a potential risk to these receptors include significant ground water impacts identified at the site, and compounds detected in ground water at the downgradient site boundary at concentrations exceeding established regulatory thresholds (e.g., HRLs).

4.2.7 Task VI – Documentation Report

Following completion of the preliminary site investigation, a documentation report will be completed. The report will include the following at a minimum:

- Overview of investigation activities completed.
- Field documentation.
- Diagrams showing the locations of all investigation activities completed.
- Soil boring logs.
- Cross-section diagrams showing the configuration of the clay layer, and as appropriate, the vertical distribution of soil and ground water contamination.
- Monitoring well construction diagrams and MDH Well Records.
- Monitoring well development and sampling documentation.
- Summary tables of soil and ground water laboratory analysis.
- Calculations of horizontal and vertical hydraulic gradients.

Figure 5.5 Portion of a work plan.

- Water table configuration diagrams.
- Formal laboratory analysis reports.
- Receptor evaluation results including calculations of relevant Tier 2 SLVs or SRVs.
- Conclusions regarding the extent and magnitude of soil and ground water contamination at the site, and the potential for adverse impacts to identified human and environmental receptors.
- If appropriate, recommendations for completing focused additional investigation activities at the site.

4.3 FOCUSED ADDITIONAL INVESTIGATION

It may be necessary to complete additional investigation activities to further evaluate issues identified during completion of the preliminary site investigation. A definitive scope of work for the additional investigation cannot be prepared at this time; however, the scope could involve one or more of the following elements:

1. Additional soil or ground water investigation activities within the site boundaries to further define the extent and magnitude of on-site contamination. This could be a focused investigation of one or more specific site areas, or could consist of a site-wide investigation.

2. Additional site investigation to define the configuration and continuity of the subsurface clay layer. This could include intrusive investigation technologies (e.g., soil borings, sampling probes, cone penetrometers), or could employ geophysics if deemed technically feasible and cost effective (e.g., seismic refraction, seismic reflection, resistivity, ground penetrating radar).

3. Ground water investigation activities to evaluate potential ground water impacts from the site to the sandstone unit underlying the clay.

4. A ground water investigation outside of the site boundaries to determine the extent and magnitude of off-site ground water impacts.

5. An evaluation of the ground water plume (if present) for indications of natural attenuation and plume stability.

6. Ground water contaminant fate and transport modeling (computer modeling).

Figure 5.5 Portion of a work plan.

7. Tier 3 receptor risk evaluations.

8. Sampling of potentially impacted water or sediment in potential surface water receptors.

The scope of work for the additional investigation will be determined based on DQOs established specifically for that work. Establishment of the DQOs and the investigation approach will be completed in consultation with the appropriate project team members from MPCA, MDA, PEER, and other relevant parties.

Figure 5.5 Portion of a work plan.

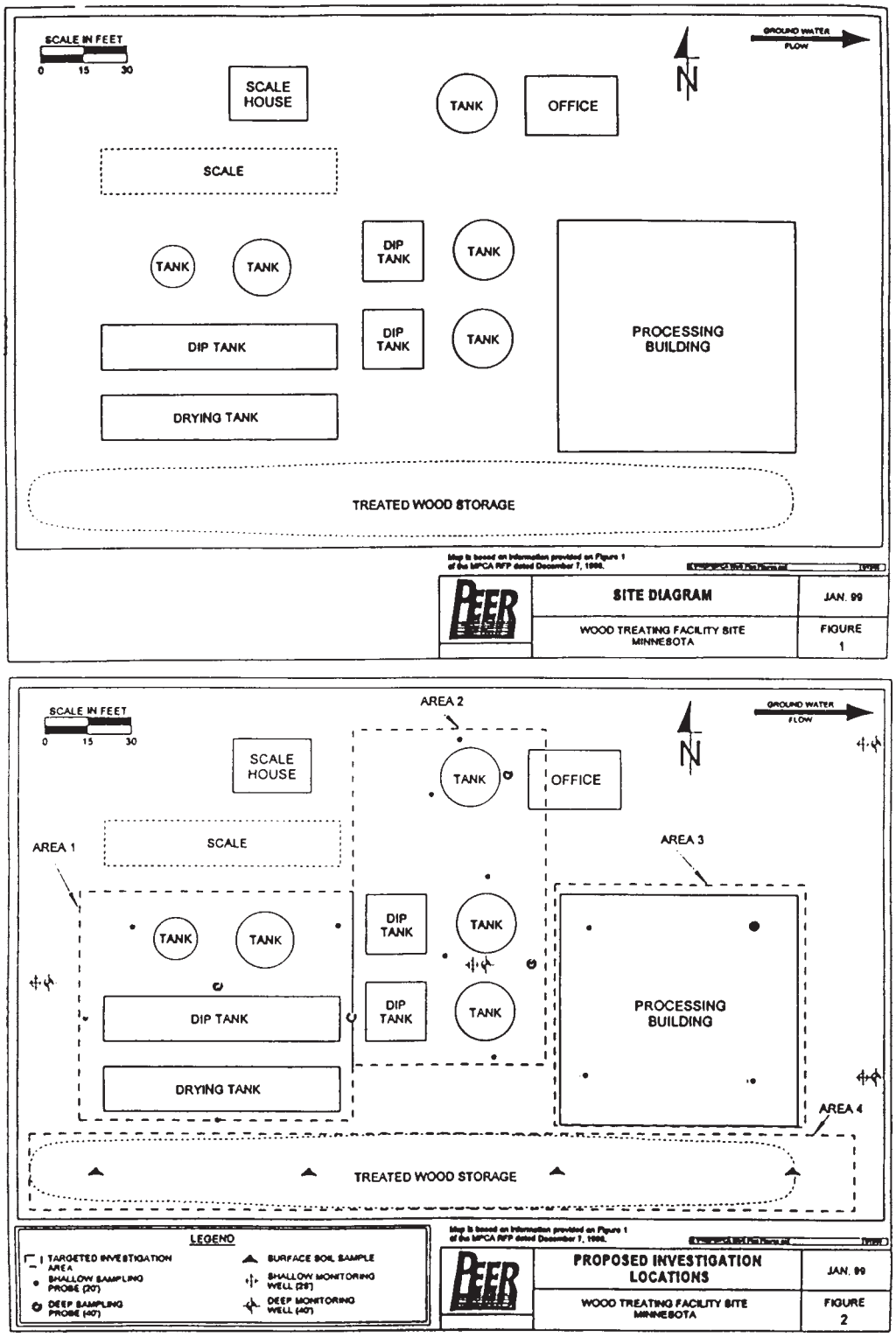

Figure 5.5 Portion of a work plan.

Summary

In this chapter, we addressed some of the issues associated with the preparations of *work plans* during the Phase II ESAs. We drew a distinction between proposals for a scope of work, contracts, and the detailed approach of work plans. We discussed tasks that need to be considered when preparing a work plan. Based on the same principles that are listed and described in the E 1903 Standard, these tasks can be presented to the user in a variety of formats, depending on the particulars of the commercial real estate transaction and the user's needs.

References

1. E 1903 *Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process*, ASTM 1997

2. Technical & Professional Training *Phase II Environmental Assessment Process*, ASTM 1999

PART TWO

Chapter 6

Assessment Activities

In this chapter, we will review some common assessment activities associated with Phase II ESAs and introduce some of the associated ASTM Standards that may become applicable. We will discuss:

- **Field screening and analytical techniques**
- **Environmental media sampling**
- **Sample handling**

Introduction

Phase II ESAs can include numerous assessment activities that are selected by the EP to meet user needs. The activities can range from further literature research or interviews, to field screening, multimedia sampling, and laboratory analysis. Testing is performed for detection, quantification or both. Detection is generally an easier and less demanding process than quantification. User needs will influence the appropriate method selection by the environmental professional (EP). This chapter looks at the field screening and sampling issues of Phase II ESAs.

D 5730 is a helpful reference

Although the use of field or laboratory methods in the Phase II ESA is not generally intended for site characterization, many of the assessment methods provide information that may characterize a certain portion or a particular issue associated with the property. Table 6.1 is a listing by topic of ASTM field and laboratory methods that may become pertinent during site characterization. It is reprinted here from the ASTM D 5730 *Standard Guide for Site Characterization for Environmental Purposes with Site Emphasis on Soil, Rock, the Vadose Zone, and Ground Water* [1]. It provides useful reference material potentially applicable to the field-testing method selection during Phase II ESA.

Certain portions of the Phase II ESA may also include methods that are required or dictated by local, state, or federal regulation. Table 6.2 is an alphabetical listing of major non-ASTM references on environmental site characterization. Some of these references are helpful or applicable for specific portions of Phase II ESAs.

Table 6.1 ASTM field and laboratory methods (source ASTM D 5730).

D 5730

Index to ASTM Field and Laboratory Methods Possibly Pertinent to Environmental Site Characterization
A, B

Topic	ASTM Standard
General:	
Reports	Indexing papers and reports (*D 3584*), use of modernized metric system (*E 380*)
Terminology	Soil, rock and contained fluids (D 653); atmospheric sampling (D 1356); basic statistics (D 4375); waste and waste management (D 5681); water (D 1129)
Objective-Oriented Guides	Acquisition of file aerial photography and imagery for establishing historic site use and surficial conditions (D 5518); *Contaminated Sites:* Expedited site characterization (*PS 85*, D 6235) developing conceptual site models for contaminated sites (E 1689); accelerated site characterization for petroleum releases (E 1912, *PS 3*);*Remediation/Corrective Action;* Risk-based corrective action(E 2081, E 2247–protection of ecological resources *PS 104*) corrective action at petroleum release sites (E 1599, E 1739/*ES38*–risk based); short term measures or early actions for site remediation (D 5745); natural attentuation (E 1943); brownfileds (E 1948); clean up levels (D 6597); activity and use limitations (E 2091); *Real Estate/Property Assessments* : Environmental condition of property area types for defense base closure (D 5746); environmental baseline surveys (D 6008); baseline property condition assessments (E 2018); real estate property transactions (Phase I: E 1527, E 1528, E 2247–forestland/rural; Phase II: E 1903); *Site-Characterization:* environmental (D 5730 - this guide, D 5995 cold regions; D 6067 - ECPT); engineering and construction purposes (D 420); *Septic System Characterization* (D 5879); Subsurface (D 5921): sizing (D 5925): *Environmental Management:* development and implementation of a pollution prevention program (E 1609); building lifecycle assessment (E 1991); lifecycle costing for pollution prevention (*PS 14*); UST Operational Conformance (E 1990); assessment of buried steel tanks (*ES 40*); environmental liability disclosure (E 2173); environmental regulatory compliance audits (E 2107, *PS 11*); estimating environmental monetary costs and liabilities (E 2137); evaluation of an organizations environmental management system (*PS 12*); development and implementation of a source reduction program (*PS 26*)
Certification/Accreditation:	Environmental professionals (E 1929); personnel engaged in testing soil and rock (D 5255)
Sampling:	
General	Collection and preservation of information and physical items by a technical investigator (E 1188); probability sampling of materials (E 105) ; *Sampling Design:* Waste management sampling design optimization (D 6311); ranked set sampling D 6582)
Air	Choosing locations and sampling methods for atmospheric deposition at nonurban locations (D 5111, D5012); guide for laboratories (D 3614); diffusive samplers (D 6246); flow rate calibration of personal sampling pumps (D 5337); planning ambient air sampling (D 1357); ambient air analyzer procedures (D 3249); sampling stationary source emissions (D 5835); *Airborne Microorganisms:* Sampling at municipal solid waste facilities (E 884); *Aerosols*; D 6552, D 6061, D 6062M; *Sampling Organic Vapors/Toxic Vapors:* **Method selection (D 6345)**; Charcoal tube absorption (D 3686), canister (D 5466); detector tubes (D 4490); length-of-stain dosimeter (D 4599); sorbent selection (D 6196); PAHs (D 6209); FTIR (D 6348)*Particulate Matter Determination:* Filter absorbance method (*D 1704, D1704M*); high-volume sampler (D 4096, D 4536); stationary source (D 6331); dustfall (D 1739—settleable particulates); *Worker Protection:* Air monitoring at waste management facilities for worker protection (D 4844); air sampling strategies for worker and workplace protection (E 1370); collection of airborne particulate lead during abatement and construction activities (E 1553); activated charcoal samplers (D 4597), liquid sorbent difussional samplers (*D 4598);* pesticides and PCBs (D 4861) Sampling indoor air quality of building (D 5791)
Biological Materials	Aseptic sampling (E 1287); see also Table X1.2
Soil/Rock/Sediments	Minimum set of data elements for soil sampling (D 5911); locational data elements (D 6168); format for exchange of computerized rock and soil data (D 6453); **selection of soil and rock sampling devices used with drill rigs (D 6169); direct push soil sampling (D 6282);** *Drilling Methods:* **Selection of drilling methods (D 6286)**; cable tool (D 5875); casting advancement (D 5872); diamond core drilling (D 2113); direct air-rotary (D 5782); direct fluid rotary (D 5783); direct rotary wireline (D 5876); dual-wall reverse circulation (D 5781); hollow-stem auger (D 5784, D 6151); *Field Sampling and Handling Methods:* Auger sampling (D 1452); radionuclides (C 998); core barrel samplers (D 6640); ring-lined barrel (D 3550); split barrel (D 1586); thin-wall tube (D 1587); piston sampler (D 6519); volatile organics (D 4547, D 6418–EnCore sampler); hollow stem auger (D 6151); coring/logging cement and lime stabilized soils (D 6236); *Sediments*:fluvial sediment in motion (D 4411, DD 4411, D 6236–transit ratios/sampling depth); submerged (D 4823); monitoring sediments in watershed (D 6145), handling, storing and preparing soft undisturbed marine soil (D 3213); collection for toxicological testing (E 1391)
Vadose Zone	*Field Methods:* **Pore liquids (D 4696); soil (D 4700);** soil gas (D 5314)
Water	Reporting water analysis results (D 596), reporting water chemical analyses (D 6568); Purgeable headspace sampling (D 3871); waterborne oils (D 4489); continual on-line monitoring (D 3864); on-line measurement of pH (D 6569); on-line measurement of turbidity (D 6699); filterable and nonfilterable matter (D 5907); on-line sampling/analysis (D 5540—flow and temperature control), water-formed deposits (D 887); QC of screening methods in water (D 6950); *Planning:* water quality measurement program (D 5612); water monitoring programs (D 5851); *Ground Water:* **Sampling methods (D 4448); selection of sampling and purging devices (D 6634)** direct push sampling (D 6001); planning a ground-water sampling event (D 5903); documenting a ground-water sampling event (D 6089); bailers (D 6699); purging methods (D 6452, D 6771 – low-flow purging and sampling); filed filtration (D 6564); field sample preservation (D 6517)*Surface Water:* dipper or pond sampler (D 5358); monitoring aqueous nutrients in watersheds (D 6146); *Closed Conduits:* equipment (D 1192); sampling (D 3370); Laboratory Practices: D3856
Waste/Contaminants	*General Guidance:* **General planning (D 4687); designing cost-effective sampling plans (D 6843); sampling equipment selection (D 6232);** representative sampling (D 6044); composite sampling and field subsampling (D 6051); Heterogeneous wastes (D 5956); laboratory subsampling (D 6323)*Specific Sampling Procedures:* bailers (D 6699); bituminous materials (D 140); COLIWASA (D 5495); drums general (D 6063 consolidated solids—D 5679, unconsolidated solids—D 5680); single or multilayered liquids (D 5743); pipes and other point discharges (D 5013); grab and discrete depth samplers (D 6759); scoop (D 5633); trier sampler (D 5451); unconsolidated waste from truck (D 5658); UST release detection devices (*E 1430*, E1526); volatile organics (D 4547); waterborne oils (D 4489); oil/water mixtures for oil spill recovery equipment (F 1084) waste piles (D 6009); wastewater automatice samplers (D 538); wipe sampling (D6601)
Preservation/Transport	Sample chain of custody (D 4840); estimation of holding time for water samples (D 4515, D4841); *Field Methods*—Rock core samples (D 5079); sample containers for organic constituents (D 3694); soil samples (D 4220); sediments for toxicological testing (E 1391); preservation/preparation of waterborne oil samples (D 3325, D 3326); handling, storing and preparing soft undisturbed marine soil (D 3213)
Decontamination of Field Equipment	*Field Methods:* Nonradioactive waste sites (D 5088); low-level radioactive waste sites (D 5608)
Data Management/Analysis	*QA/QC:* Waste management environmental data (D 5283); waste management DQOs (D 5792); precision and bias (E 177); QC specification for organic constituents (D 5789); *Data Analysis:* Evaluation of technical data (E 678); outlying observations (E 178); reporting results of examination and analysis of water-formed deposits (D 933); *Waste Management Data:* Data assessment (D 6333); decision point (D 6250); *Geostatistics:* reporting geostatistical site investigations (D 5549); analysis of spatial variation (D 5922); selection of kriging methods (D 5923); selection of simulation approaches (D 5924); *Spatial Data:* digital geospatial metadata (D 5714); see also Ground Water (Data Analysis)

Table 6.1 (*Continued.*)

Topic	ASTM Standard
Soil/Rock Hydrologic Properties:	
Infiltration Rate	*Field Methods:* Double-ring infiltrometer (D 3385); sealed double-ring infiltrometer (D 5093)
Matric Potential	*Field Methods:* Tensiometers (D 3404); *Laboratory Method:* Filter paper method (D 5298)
Water Content	*Field Methods:* Calcium carbide method (D 4944); neutron probe (D 3017—shallow depth, D 5220— depth probe: D 6031 - horizontal, slanted and vertical access tubes); time domain reflectometry (D 6565, D 6780)*Laboratory Methods:* Direct heating method (D 4959); microwave oven method (D 4643); standard oven drying method (D 2216); centrifuge moisture equivalent (D 425)
Hydraulic Conductivity	*Field Methods:* **Vadose zone (D 5126);** *Laboratory Methods:* Granular soils (D 2434—>1 × 10^{-3} cm/sec); low permeability soils (D 5084—<1 × 10^{-3} cm/sec); rigid-wall compaction-mold permeameater (D 5856); effect of freeze/thaw (D 6035); peat (D 4511); unsaturated/saturated with centrifugation (D 6527); partially saturated (D 6539); see also Ground Water/Aquifer Hydraulic Properties
Other Hydrologic Properties	Soil —water moisture flux (D 6642)*Laboratory Methods:* Air permeability (D 4525); Soil water retention (D 2325—medium/coarse textured, D3152—fine-textured)
Soil/Rock Physical Properties:	
Particle Size	*Soil Laboratory Methods:* Analysis (D 422); dry preparation (D 421); <200 sieve (D 1140); wet preparation (D 2217); *Sediment:* Selection of methods for fluvial sediment (D 4822)
Soil Density	*Field Methods:* Drive cylinder (D 2937); gamma-gamma (D 2922—<12", D5195—>12"); peat (D 4531); (D 4531); penetration (D 1586); rubber-balloon method (D 2167), sand-cone method (D 1556); sand replacement method (D 4914); sleeve method (D 4564); time domain reflectometry (D 6780); water replacement method (D 5030); nuclear method (D 6031)
Pore Volume/Specific Density	*Laboratory Methods:* pore volume (D 4404); specific gravity (D 854, D5550—gas pycnometer)
Cone Penetration	*Field Methods:* In-situ cone penetration testing (D 3441, D 5778); CPT stress wave energy measurements (*D 4633*); liquification potential evaluation (D 6066); ECPT for environmental site characterization (D 6067); LIF characterization of petroleum contamination (D 6187)
Classification	*Field Methods:* Field logging (D 5434); noncohesive sediments (D 5387); peat (D 4544—deposit thickness, degree of humification—D 5715); sediments (D 4410); visual-manual procedure (D 2488—unified, D4083—frozen soils); rock mass classification (D 5878); rock quality designation (D 6032); *Laboratory Methods:* frozen soils (D 4083); natural mineral aggregates (C 294); peat (D 2607); unified soil classification (D 2487)
Geophysical Properties	*Surface Geophysical Methods:* **selecting surface geophysical methods (PS78, D6429);** seismic refraction (D 5777); soil resistivity (G 57—Wenner 4-electrode method); DC resistivity (D 6431); GPR (D 6432); electromagnetic (D 6639–frequency domain, D 6820 — time domain)gravity (D 6430); *Borrehole Geophysical Methods:*Crosshole seismic testing (D 4428/D 4428M); **planning and conducting borehole geophysical logging (D 5753)**; mechanical caliper (D 6167); electromagnetic induction (D 6726), gamma (D 6274), neutron (D 6727)
Engineering Properties	*In Situ Field Methods:* Bearing capacity/ratio (D 1194, D 4429); deformability and strength of weak rock (D 4555); direct shear strength (D 4554, D 5607); erodibility (D 5852), frost heave/thaw, susceptibility (D5918); extensometers (D 4403); in situ creep (D 4553); in situ modulus of deformation (D 4394—rigid plate, D 4395—flexible plate, D 4506—radial jacking test, D 4729—flatjack method, D 4791—borehole jack); in situ stress (D 4623—borehole deformation gage, D 4645—hydraulic fracturing; D 4729—flatjack method); pressure measurement (D 4719—pressuremeter, D 5720—transducer calibration); stiffness (D 6758); vane shear test (D 2573); *Laboratory Methods:* California bearing ratio (D 1883); classification (D 2487); compaction (D 698, D 1557, D 5080); compressive strength (D 2166, D 2938); consolidation (D 2435); core dimensional and shape tolerances (D 4543); dispersive characteristics (D 4221—double hydrometer; D 4647—pinhole test; D 6572–crumb test); elastic properties (D 2845, D 3148); impact valve (D 5874); linear displacement (D 6027 - calibrating transducers); liquid limit (D 4318); moisture content-penetration resistance (D 1558); one-dimensional swell (D 4546); plastic limit/plasticity index (D 4318); point load strength (D 5731); rock hardness (D 5873) shrinkage factors (D 427; D 4943); tensile strength (D 2936; D 3967); thermal properties (D 5334, D 5335); triaxial compression (D 2850, D 2664, D 4406, D 4767, D 5311, D 5407); uniaxial compression (D 4341, D 4405); use of significant digits (D 6026); shear tests (D 4648–vane; D 6467–drained; D 6528–undrained); *Evaluation of Laboratories:* D 3740
Miscellaneous	*Field:* Geotechnical mapping of large underground openings in rock (D 4543); *Laboratory Methods:* X-ray radiography (D 4452)
Peat/Organic Soils	*Laboratory Methods:* Bulk density (D 4531); classification (D 2607); hydraulic conductivity (D 4511); pH (D 2976); moisture/ash/organic matter (D 2974); moisture holding capacity and porosity (D 2980)
Frozen Soils	*Field:* Description (D 4083); *Laboratory:* Creep properties by uniaxial compression (D 5520)
Soil/Rock/Sediment Chemistry:	
Basic Chemistry	*Field Methods:* Soil pH for corrosion testing (G 51); *Laboratory Methods:* Calcium carbonate (D 4373); pH (D 4972); soluble salt content (D 4542); diagnostic soil test for plant growth and food chain protection (D 5435); minimum requirements for laboratories engaged in chemical analysis (D 5522)
Soil Contaminants	Nitroaromatic and nitramine explosives (D 5143); screening fuels (D 5831); PCBs using room temperature phosphorescence (*PS 47*); radionuclides (C 998, C 999); petroleum contamination with CPT/LIF (D 6187)
Sediments	Preparation for chemical analysis (D 3975, D3976)
Sorption/Leachability	See fate-related procedures in Table A.1
Ground Water:	
Characterization/Monitoring	Assessing aquifer sensitivity and vulnerability (D 6030); conceptualization and characterization (D 5979); wetland functions (E1938); wetland functions (E 1938); existing wells (D 5980); locating abandoned wills (D 6285); monitoring karst and fractured rock aquifers (D 5717); statistical approaches for ground-water detection monitoring programs (*PS 64*, D 6312); nomenclature for aquifers (D 6106)
Data Elements	*Field Methods:* Minimum set (D 5254); additional identification descriptors (D 5408); additional physical descriptors (D 5409); additional usage description (D 5410); selection of data elements (D 5474)
Data Analysis/Presentation	Presentation of water level information (D 6000); *Chemical Analysis:* Diagrams for single analyses (D 5738); trilinear diagrams (D 5754); diagrams based on data analytical calculations (D 5877); use of maps (D 6036)
Monitoring Wells	*Field Methods:* **Design/installation** (D 5092); protection (D 5787); direct push D 6724, D 6725–prepacked screens); decommissioning (D 5299); casing (D 1785, F 480); grout (C 150—portland cement); water level measurement (D 4750); well development in granular aquifers (D 5521); well discharge (D 5716—circular orifice weir, D 5737—guide to methods); maintenance and rehabilitation (D 5978)
Aquifer Hydraulic Properties	*Field Methods:* Packer tests (D 4630, D 4631); aquifer tests with control wells (D 4105, D 4106, D 5269, D 5270, D 5472, D 5473); D 5920 - anistropic unconfined; D 6028, D 6029–(leaky confining beds); slug tests (D 4044, D 4050, D 4104, D 5785, D 5881, D 5912); constant drawdown for flowing wells (D 5787, D 5855); constant rate pumping (D 6034); partially penetrating wells (D 5850); two-stage infiltration (D 6391); **test selection** (D 4043)

Field Screening and Analytical Techniques

Field screening methods are often used during the Phase II ESA to characterize certain attributes of the site. Many of the methods and instruments are designed primarily for detection and provide limited results with respect to quantification. New, more accurate field screening instrumentation is being introduced into the marketplace, and the EP must stay abreast of the developing technology to stay competitive, and to be able to apply the appropriate technology to meet the user's needs.

Field screening gives quick results

The advantages of field screening methods are that they generally enable the EP to get data quickly in that the results are read directly from the instrumentation at the site and do not require transport of the sample to the laboratory. This also allows multiple sampling to confirm the results, and it enables the EP to sample multiple locations. Some of the instruments are also capable of providing some quantification data. The EP can detect higher concentrations and

Table 6.1 (*Continued.*)

D 5730

Topic	ASTM Standard
Modeling	Site specific application (D 5447); comparing simulation to site-specific information (D 5490); documenting model application (D 5718); defining boundary conditions (D 5609); defining initial conditions (D 5610); conducting sensitivity analysis (D 5611); simulation of subsurface air flow (D 5719); subsurface flow and transport modeling (D 5880) model calibration (D 5981); developing and evaluating codes (D 6025); describing functionality (D 6033); selecting a modeling code (D 6170); documenting a modeling code (D 6171)
Chemistry	*Field Methods:* Acidity/Alkalinity (D 1067); electrical conductivity/resistivity (D 1125); ion-selective electrodes (D 4127); low-level dissolved oxygen (D 5462); odor (D 1292); pH (D 1293, D 5464); redox potential (D 1498), test kits for inorganic constituents (D 5463); turbidity (D 1889); *Extraction Methods:* purgeable organics using headspace sampling (D 3871); micro-extraction for volatiles and semivolatiles (D 5241); *Laboratory Methods:* Organic carbon (D 2579); minimum requirements for laboratories engaged in chemical analysis (D 5522); see, generally, Vols 11.01 and 11.02
Microbiology	ATP content (D 4012); iron bacteria (D 932); sulfate-reducing bacteria (D 4412); microbial respiration (D 4478); microscopy (D 4454—total respiring bacteria, D4455—epifluorescence); plating methods (D 5465); on site screening heterotrophic bacteria (F 488)
Surface Water:	
Geometry/Flow Measurement	Depth measurement (D 5073 D 5909-horizontal positioning, fathometer calibration D 6318); measurement of morphologic characteristics of surface water bodies (D 4581); operating a gaging station (D 5674); *Discharge:* Step backwater method (D 5388); *Open Channel Flow:* Selection of weirs and flumes (D 5640); acoustic methods (D 4408); acoustic velocity method (D 5389); broad-crested weirs (D 5614); culverts (D 5243); developing a stage-discharge relation (D 5541); dye tracers (D 5613); electromagnetic current meters (D 5089); Palmer-Bowles Flume (D 5390); Parshall flume (D 1941); rotating element current meters (D 4409); slope-area method (D 5130); thin-plate weirs (D 5242); velocity-area method (D 3858); width contractions (D 5129); *Open Water Bodies:* Water level measurement (D 5413)
Other Characteristics	Suspended sediment concentration (*D 3977*); environmental conditions relevant to spill control systems (F 625); *Chemistry:* See ground water above
Waste/Contaminants:	
Waste Properties	*Field/Screening Methods:* Compatibility (D 5059); asbestos (D|2947); cyanides (*D 5049*); flammability potential (D 4982); oxidizers (D 4981); pH (D 4980); physical description screening analysis (D 4979); radioactivity (D 5928); sulfides (D 4978); waste specific gravity/bulk density (D 5057); *Laboratory Methods:* Waste bulk density (E 1109); biological clogging of geotextiles (D 1987); coal fly ash (D 5759); solid waste freeze-thaw resistance (D 4842); stability and miscibility (D 5232); wetting and drying (D 4843); *Extraction Methods:* Single batch extraction methods (D 5233); sequential batch extraction with water (D 4793 - water, D 5284 - acidic extraction fluid); soxhlet extraction (D 5369); total solvent extractable content (D 5368); solvent extraction of total petroleum hydrocarbons (D 5765); shake extraction of solid waste and water (D 3987)
Contaminant Fate	See fate-related procedures in Table A.2
Radioactive Materials	*Monitoring:* Detector calibration (E 181); radiation measurement/dosimetry (D 3648, E 170); radiation protection programs for decommissioning operations (E 1167); *Sampling/Preparation:* sampling surface soil for radionuclides (C 998); soil sample preparation for determination of radionuclides (C 999)
Asbestos	Screen analysis (D 2947)
Other Site Conditions:	
Field Atmospheric Conditions	Atmospheric pressure (D 3631); temperature (D 6167M); conversion unit and factors (D 1914); determining comparability of meteorological measurements (D 4430); *Humidity:* Dew-point hygrometer (D 4030); psychrometer (E 337); terminology (D 4023); *Wind:* Anemometers (*D 4480*, D 5096, D 5741, D 6011); surface wind by acoustic means (D 5527); wind vane (D 5741, performance - D 5366) see Volume 11.03 generally
Solar insolation	Pyranometers (E 824, E 913, E 941); pyrheliometers (E 816)

use the real-time ability of field screening to pinpoint the areas of highest concentrations. Such information can be extremely useful in identifying potential sources of contamination or preliminary mapping of the horizontal and vertical distribution of contaminants. Even if the data are not sufficient to answer all of the questions, they can guide the collection of samples for more rigorous laboratory testing or field analysis.

Field screening methods can be extremely cost effective. Once the instrument is set up in the field, cost to run a number of additional samples is minimal compared with cost of laboratory analysis.

Reliability and accuracy must be considered

Some of the disadvantages of the field screening methods are associated with the reliability and accuracy of the data as well as the reliability of the instrumentation itself. Laboratory tests generally provide more accuracy and precision, but need more time to process and require strict quality control during sampling, storage, and transportation to the lab. The EP must consider the limitations of the field screening methods with respect to the usability of the data. If the data obtained are adequate to provide the user with satisfactory information, the field screening methods may provide a fast and efficient way to meet users' needs. Alternatively, the environmental professional may consider the use of mobile laboratories for selected projects.

Table 6.2 Non-ASTM Environmental Site Characterization References (Source ASTM D 5730).

D 5730

MAJOR NON-ASTM REFERENCES ON ENVIRONMENTAL SITE CHARACTERIZATION

X2.1 *General Applications:*

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Field screening FID, PID, GC, etc.

Field screening methods are used to assess soil, soil gas, surface water, or groundwater. The methods typically use the principles of ion-selective electrodes and detection of volatile organic compounds using field gas chromatographs. The detection of inorganic constituents and semi-volatile organic chemicals is accomplished using colorimetric wet chemistry methods, including enzyme im-

Table 6.2 (*Continued.*)

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Table 6.2 (*Continued.*)

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Field screening not limited to sampling

Field analytical techniques are not limited to instrumentation that samples media and analyzes them for potential contaminants. Geophysical methods using ground penetrating radar or electromagnetics can also be used to identify underground structures, including storage tanks and piping. Figure 6.2 shows a magnetometer survey for buried metal drums. Figure 6.3 is an example of output from ground penetrating radar. Many of these methodologies can be useful in site screening, especially when the scope of the Phase II investigation includes screening for specific contaminants of objects or when the data are used for site characterization. Some of the screening methods can be quite complex, requiring specialized expertise to interpret the results.

Another screening method uses Laser Induced Fluorescence (LIF) [2,3]. Figure 6.4 illustrates the basic principles of subsurface fluorescence screening systems. In-situ tools such as LIF are capable of delineating contamination faster and with higher definition than many other field methods. LIF screening systems typically exhibit semiquantitative monotonic behavior for standard light non-aqueous phase liquids (LNAPLs) such as diesel, jet, and gasoline with limits of detection (LOD) of 100 mg/kg. Some LIF systems are designed specifically for coal tars and creosotes with typically higher LOD ranging from 100 to 500 mg/kg.

The LIF sensor is deployed with either percussion or static direct-push technologies. LIF employs a variety of lasers (dependent on the company providing the LIF and/or the product being delineated) coupled with an optical detector to measure fluorescence via optical fibers. The measurements and detection are made through a

Figure 6.1 Flame ionization (left) and photo ionization (right) detector screening for VOCs.

sapphire window on a probe that is pushed into the ground by a truck-mounted direct push machine such as Geoprobe or Cone Penetrometer Test (CPT) systems.

The LIF probes are typically advanced at an ASTM Standard speed of 2 cm/s. The LIF method provides data on the in-situ distribution of petroleum hydrocarbons based on the fluorescence response induced in the PAH compounds. The method provides a real-time detect/nondetect field-screening capability relative to a detection limit for specific fuel products on a site-specific soil matrix. The technique does not provide species-specific quantitation; however, it can produce semiquantitative results at concentrations within two orders of magnitude of its detection limit for fluorescent fuel hydrocarbons [2].

Figure 6.5 illustrates the multi-wavelength delay fiber detection system concept. The resulting waveform data provide valuable insight into both the quantity and identity of the fluorescing materials. This allows characterization of the subsurface fluorescence "on the fly" during the push, since the waveforms are recorded quickly (~50 waveforms averaged each second) [3].

Depending on the nature and complexity of the Phase II ESA, the EP may also select other field testing methodology to generate useful information that helps to identify contaminant pathways or conditions of structures. For example, dyes can be used to trace drains and groundwater patterns in fractured rock, thickness gages to evaluate conditions of tanks, flow and turbidity meters to analyze discharges or stream characteristics, and video probes can be used to inspect inaccessible areas such as wells and sewers.

Field screening and field analytical methodologies are used to gen-

Figure 6.2 Magnetometer survey (provided by PEER Environmental, Inc.).

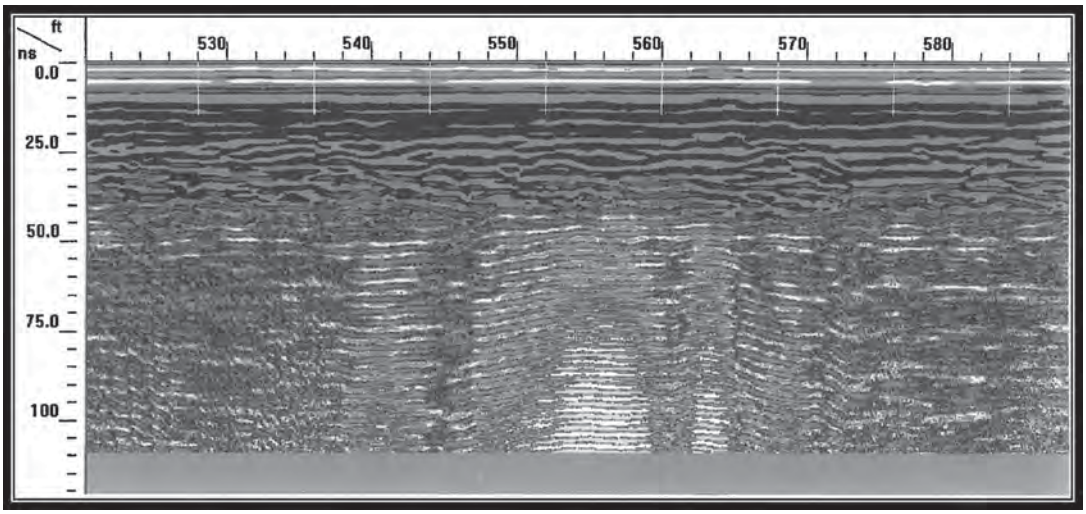


Figure 6.3 Ground penetrating radar data printout.

erate information that provides qualitative confirmation of contaminants. It answers the question with a simple yes or no. Some methods also provide information which gives some quantitative answers, i.e., how much? For example, Figure 6.6 shows a soil vapor sampling for field gas chromatograph testing. With EPs' help, the users can evaluate the information together with risk tolerance and determine whether the results are sufficient to make business decisions.

In the past decade, the advances in instrumentation have made it possible for selected laboratory methods to be completed in a mobile laboratory at the site. When quick turn-around times are essential, it may be appropriate to bring a state certified mobile laboratory onto the site to analyze samples as they are collected. This can provide a high level of accuracy with quick turn-around. Figure 6.7 is an example of such a laboratory.

Environmental Media Sampling

EP specifies activities in work-plan

Section 8.3 of E 1903 [4] outlines some of the basic principles associated with environmental sampling, field or laboratory analysis. The assessment activities are designed to determine whether hazardous substances and petroleum products or other conditions of concern to the user are present on the property. The EPs generally specify which activities will take place in the work plan and select sampling location and analytical parameters that focus on achieving the objectives agreed upon with the user. Many ASTM Standards provide further guidance with sampling methodology and protocols. Some include detailed descriptions with figures and tables to assist the EPs in performing the required elements. For example, Figure 6.8, taken from D 6001 *Standard Guide for Direct-Push Water Sampling for Geoenvironmental Investigations* [5], shows a *simple protected screen sampler*. Under some circumstances, the sampling procedure will require some specific proce-

dures to stabilize the sampling media. For example, D 4750 *Standard Test Method for Determining Substrate Liquid Level in a Borehole or Monitoring Well* [6] describes procedures for measuring liquid levels in establishing a stabilized condition at a sampling location.

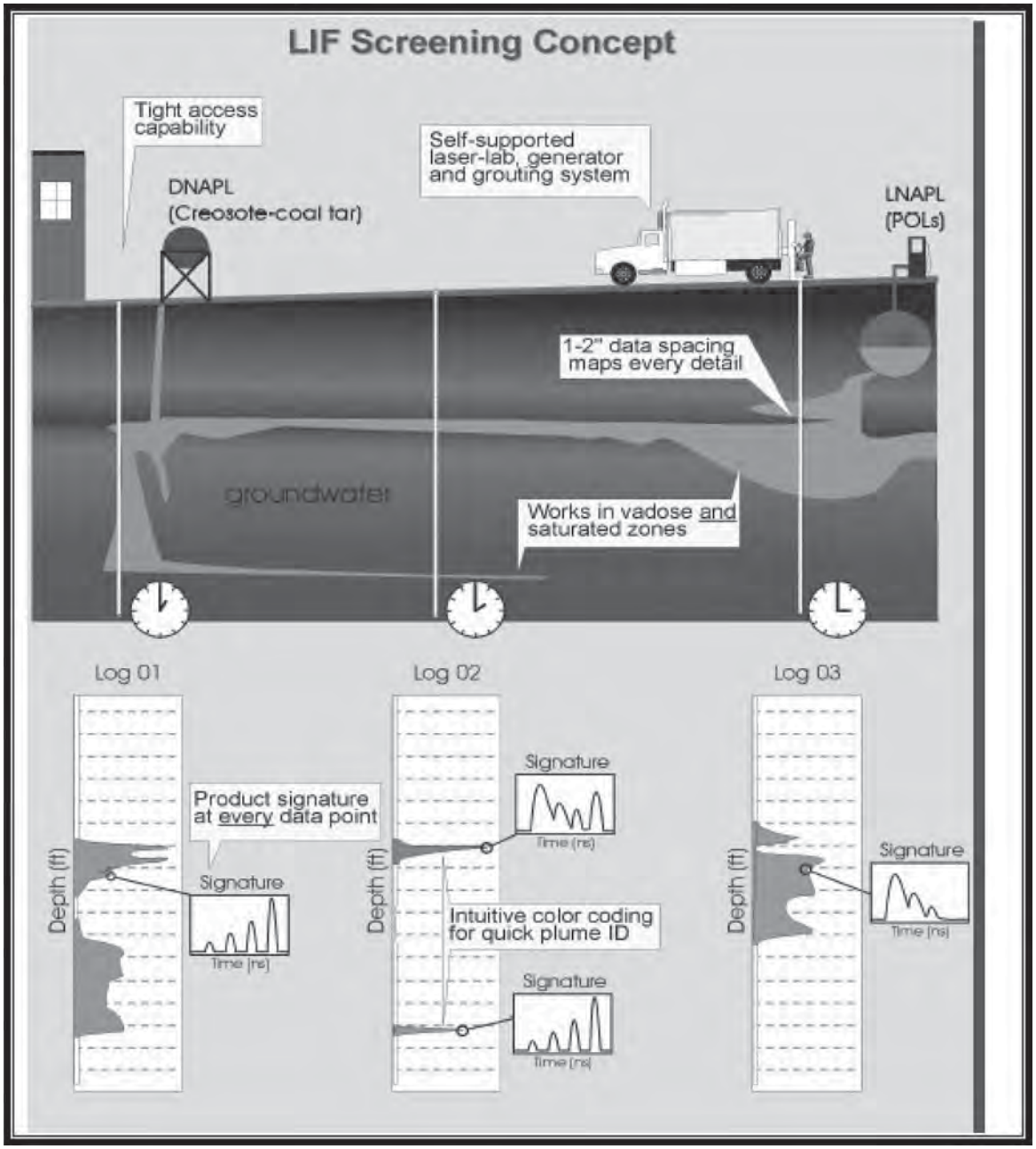


Figure 6.4 Laser induced fluorescence (provided by Dakota Technologies, Inc., 2201-A 12th St. N., Fargo, ND 58102 [3]).

E 1903 requires the EPs to note and justify any deviations in the final report. It is generally a good business practice to advise the client of any deviations promptly, rather that waiting until the final report stage.

The EPs must sufficiently document the sampling locations. Depending on the objectives of the assessments, the sampling location documentation can range from general identification of a sampling location on a sketch to detailed surveyed locations. The EPs should follow the agreed documentation procedure.

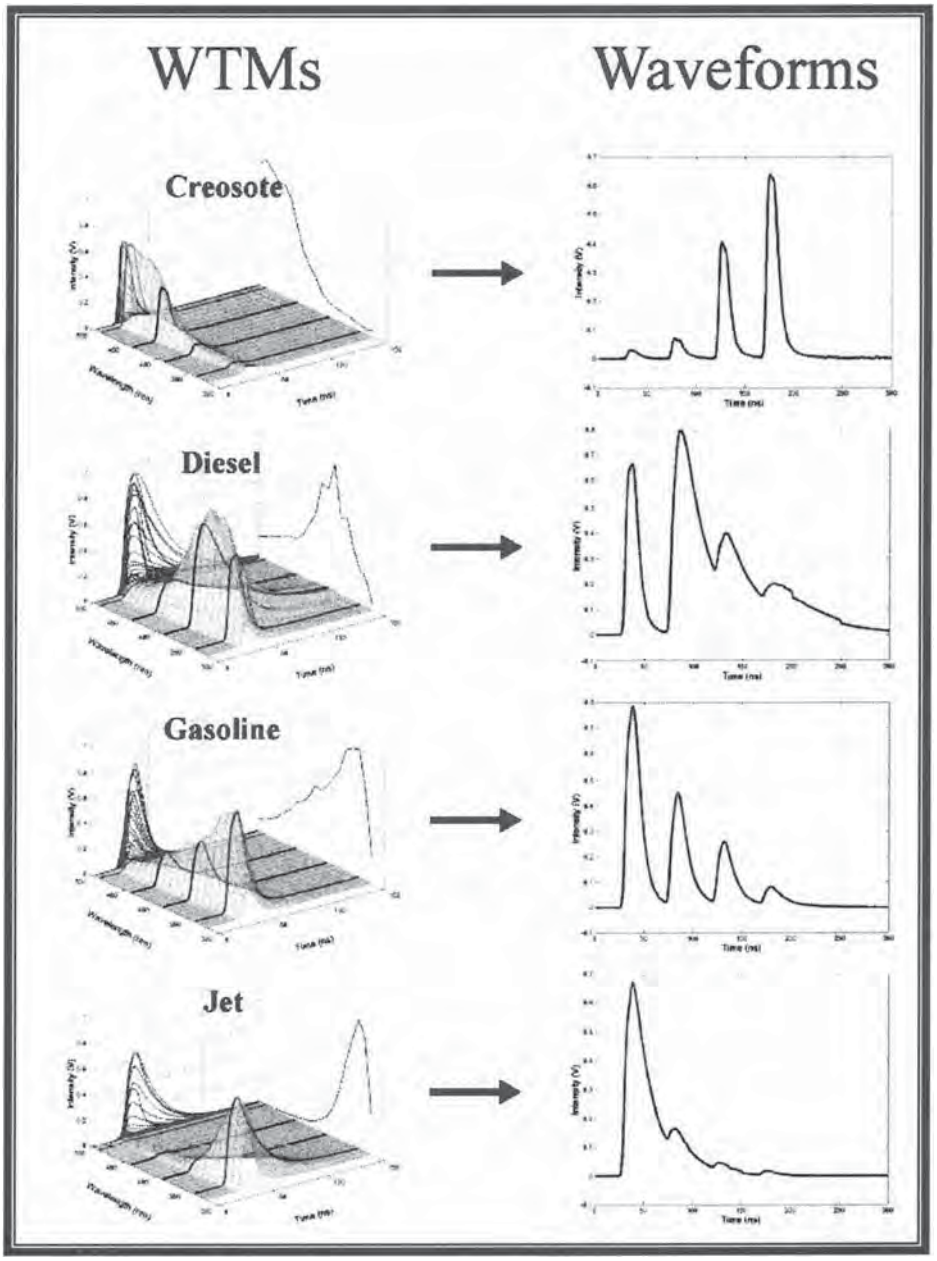


Figure 6.5 Multi-wavelength delay fiber detection system concept (provided by Dakota Technologies, Inc., 2201-A 12th St. N., Fargo, ND 58102 [3]).

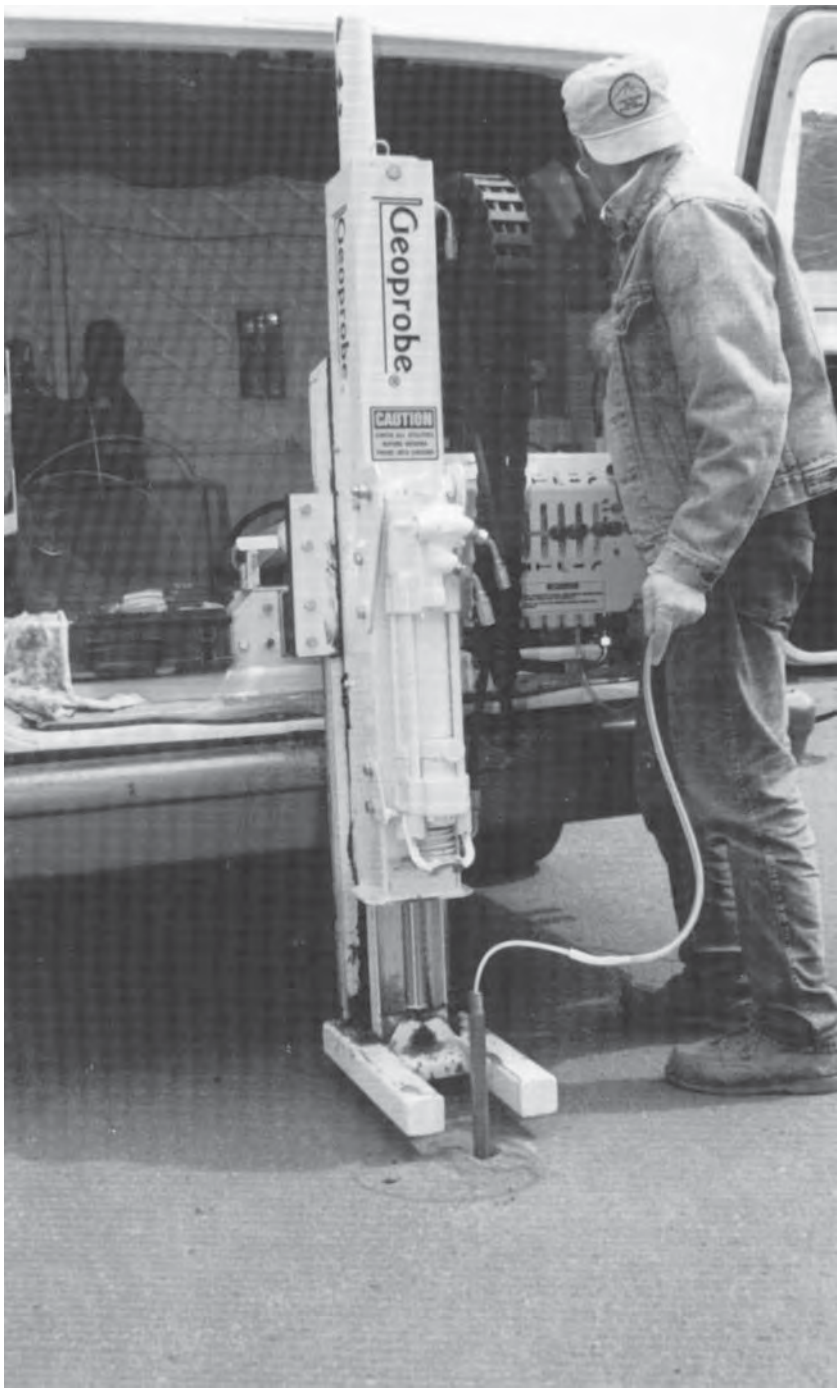


Figure 6.6 Field GC testing of soil gas samples (provided by PEER Environmental, Inc.).

Sample Handling

Collection, containerization, filtration, preservation, and transportation

Sample handling includes all the activities during sample collection, containerization, filtration, preservation, and transportation to the laboratory. Additionally, once the samples have reached the laboratory, they may be handled further in preparation for the specific testing. Certain tests require only a portion of the submitted sample to undergo testing. The laboratory is actually taking a sample of the sample. Certain homogenization procedures may be employed in an attempt to ensure that the smaller sample taken is an accurate representation of the larger sample. Under some circumstances the sample handling should be minimized. Soil samples collected for VOC analysis, for example, should be handled as little as possible and homogenization is prohibited by standard procedures.

The EPs must consider the potential for contamination during sampling activities. Contaminants can be introduced into the sample from the sampling equipment and other environmental factors. Every step in the sampling process can potentially cause contamination of the sample. Multiple sampling is susceptible to cross contamination and documentation errors. Adequate care and

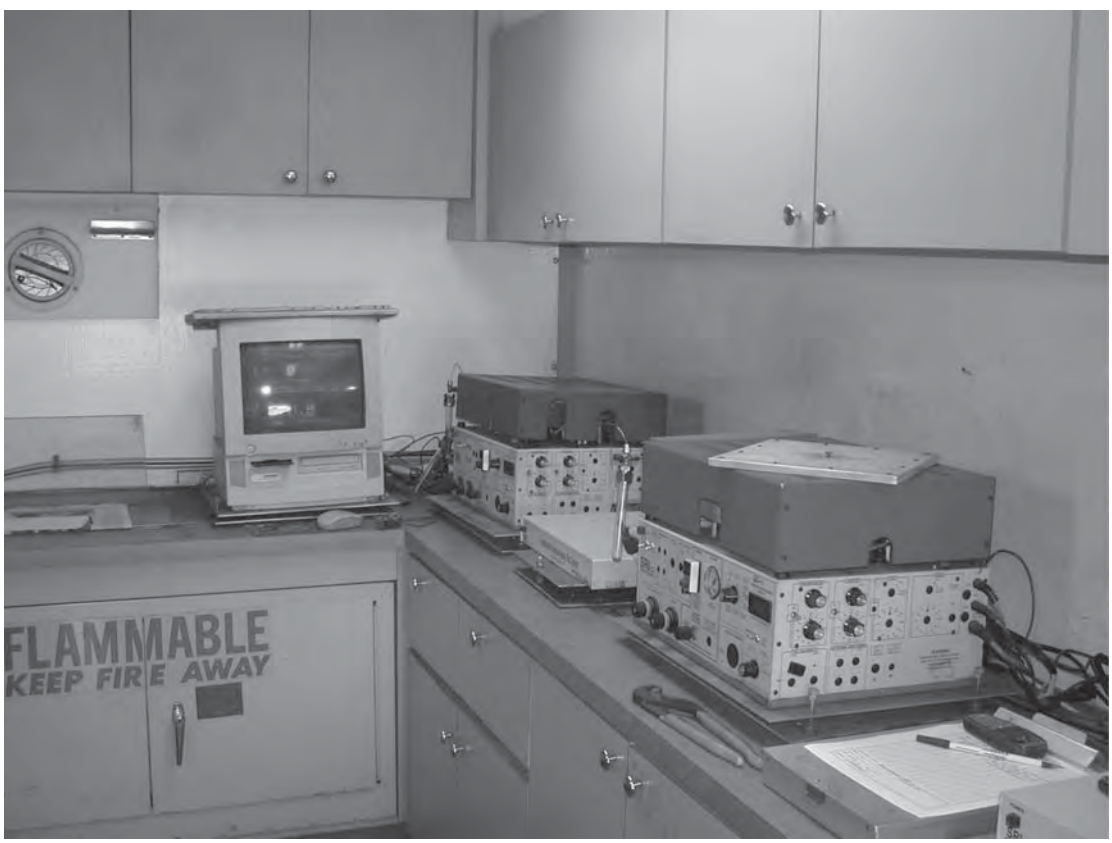


Figure 6.7 Interior of truck mounted mobile laboratory (Analytical Laboratories of Florida, photographed by Zdenek Hejzlar).

appropriate quality control measures should be taken to ensure the integrity of the process. Drilling and excavation procedures in contaminated media have the potential to spread the contamination or generate new pathways for migration. The EPs must take adequate care to minimize these factors. New sampling technologies and equipment specially designed to minimize potential errors are being introduced into the marketplace on a frequent basis and require the EPs to stay current on technological improvements and innovations.

Depending on the media being sampled, the EP will have to utilize applicable standardized methodology for preserving and transporting the samples. Figure 6.9 depicts a shipping box design for soil sample transport. The figure is reprinted here from ASTM D 4420 *Standard Practice for Preserving and Transporting Soil Samples*

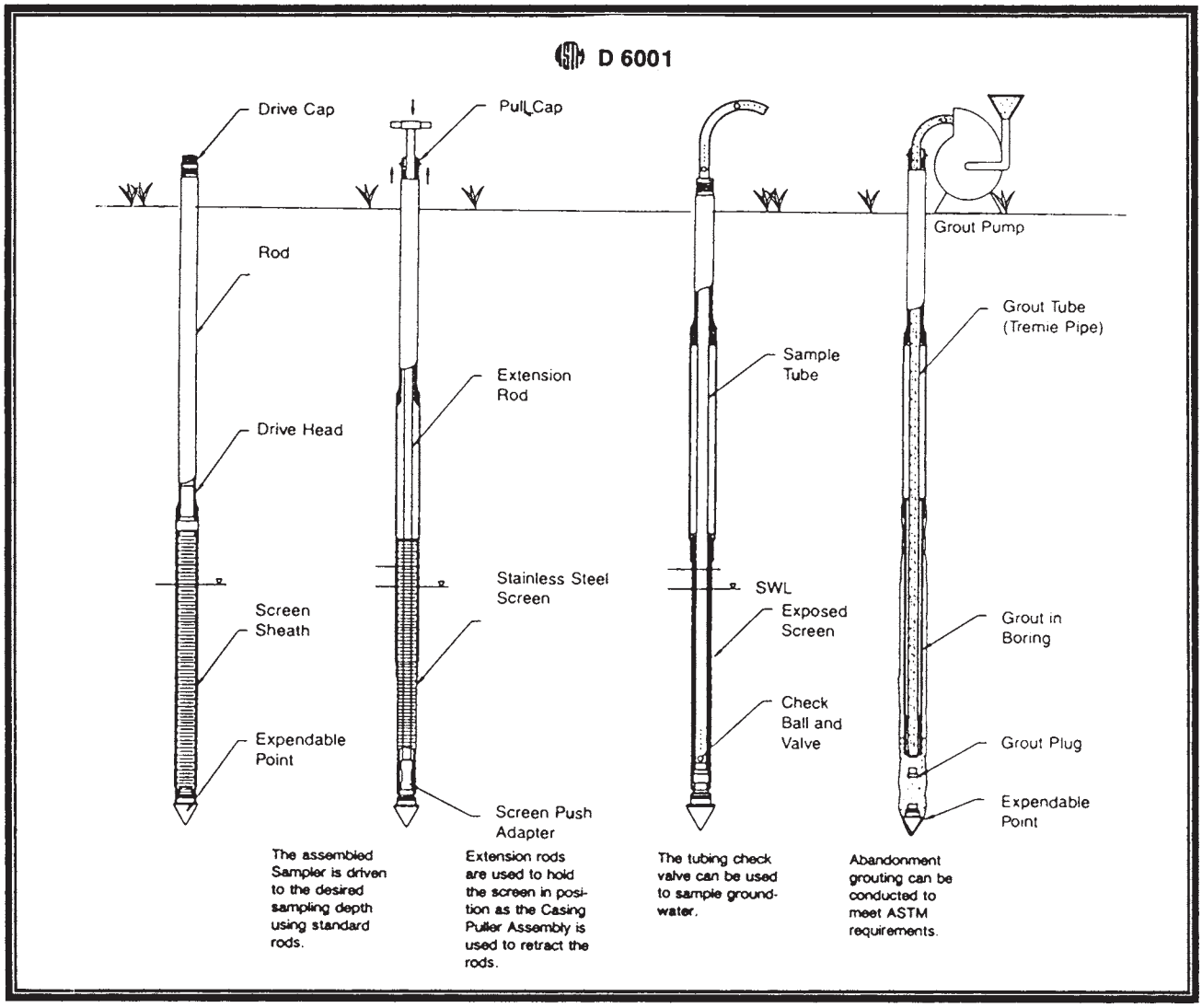


Figure 6.8 Simple protected screen sampler (source ASTM D 6001).

[7]. This Standard was primarily intended for soil samples that are to be tested for engineering properties, but the principles outlined are applicable for samples of soil for other evaluation purposes, including potentially contaminant containing soils. Organic chemical analysis testing often requires the samples to be maintained at uniform temperatures or refrigerated. For this reason many sample handling procedures utilize coolers to transport samples to the laboratory.

Transportation is subject to regulations

The transportation of samples may include shipment of samples by commercial carriers. Transportation, containment, storage and disposal of samples obtained from contaminated sites may be subject to regulations established by federal, state, and local agencies.

The chain of custody record is a formalized written documentation providing information about sample collection and handling. It identifies dates and times of collection and transfer among all individuals involved in the chain of sample possession. It also identifies the requested testing, generally by listing or referencing an agency procedure. Figure 6.10 is an example of a chain of custody record.

The completed forms are a required part of the written report documentation of E 1903 and are generally included as appendices. The completed forms also provide information about the time and date at which certain activities were completed. Some methods require

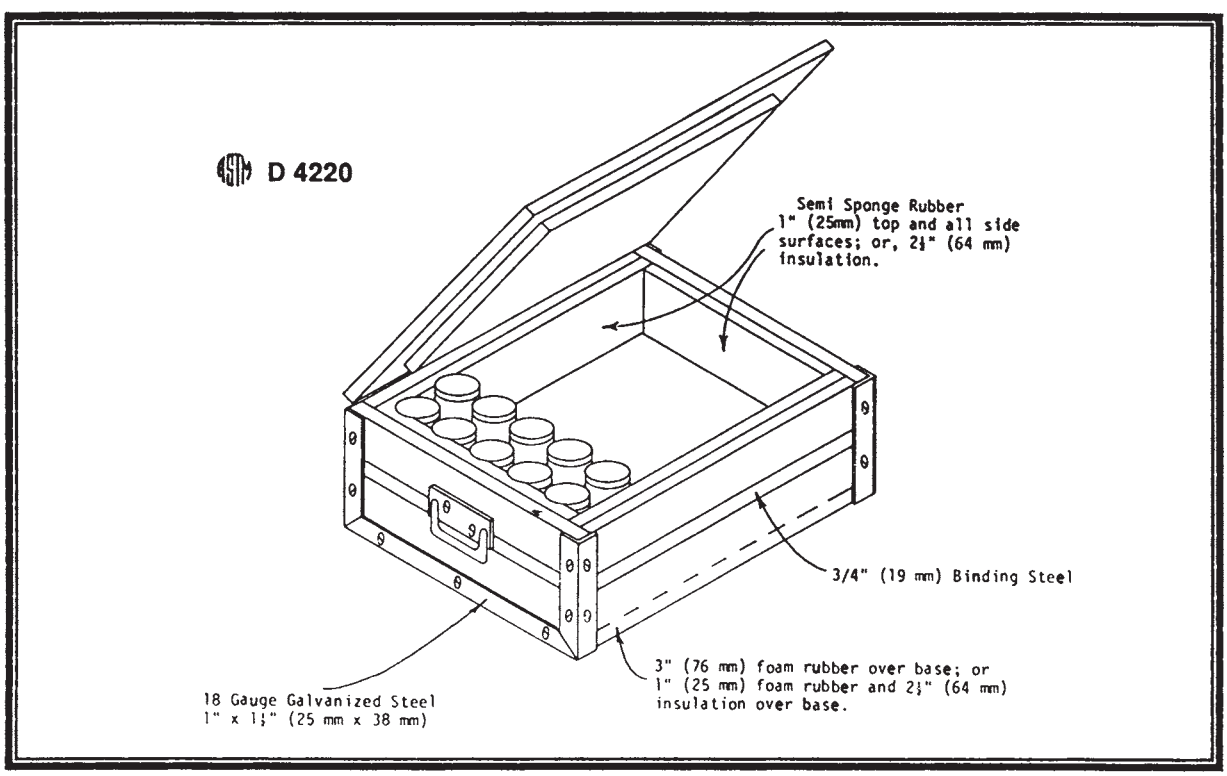


Figure 6.9 Shipping box design for short tube or ring samples (ASTM D 4220).

specific sample holding times that should not be exceeded. E 1903 recommends that the EP take appropriate measures to deliver the samples, enabling the analysis to be completed within the appropriate sample holding times.

D 4220

Sample Identification/Traceability Record
(Controlled Document)

Project: _____ W.O. # _____
Shipped by: _____
Shipped to: _____ Attention of:
Comments: _____ Hazardous materials suspected? (yes/no)

Sampling Point	Location	Field ID #	Date	Sample Type	No. of Containers	Analysis/Test Required	(optional) Lab ID

Sampler(s) (signature) _____

Field ID	Relinquished by: (signature)	Date/Time		Received by: (signature)	Date/Time		Comments

Shipment prepared by: (signature) _____ Date/Time _____ Shipment method: _____
Received for Lab by: (signature) _____ Date/Time _____ Comments _____

Receiving Laboratory: Please return original form after signing for receipt of samples.

Figure 6.10 Example of chain of custody form (ASTM D 4220)

Summary

In this chapter, we discussed issues associated with assessment activities. We considered some of the advantages and disadvantages of field screening compared with laboratory analysis. We learned that Phase II ESAs may include both field screening and laboratory analysis. We identified the vast array of ASTM and non-ASTM Standards and referenced other documents that may become applicable or useful materials for the assessment activities portion of Phase II ESAs.

References

1. D 5730 *Standard Guide for Site Characterization for Environmental Purposes With Site Emphasis on Soil, Rock, the Vadose Zone and Ground Water*, ASTM 1998

2. *Real-time in situ detection of organic contaminants by laser-induced fluorescence system*. EERC, Solc, J. et al., Grand Forks, 1999

3. *In-situ Optical Screening Tool for Subsurface Coal Tar and Creosote NAPL* Randy St. Germain, Gregory Gillispie, Steven Adamek, and Tom Rudolph, Dakota Technologies, Inc., 1999

4. E 1903 *Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process*, ASTM 1997

5. D 6001 *Standard Guide for Direct-Push Water Sampling for Geoenvironmental Investigations*, ASTM 1996

6. D 4750 *Standard Test Method for Determining Substrate Liquid Level in a Borehole or Monitoring Well*, ASTM 2001

7. D 4220 *Standard Practice for Preserving and Transporting Soil Samples*, ASTM 2000

PART TWO

Chapter 7

Evaluating Data and Interpreting Results

In this chapter, we will discuss steps the EPs must take to validate data to ensure scientifically based interpretation of the results. We will discuss:

- **Evaluation of data**
- **Interpretation of results**
- **Elimination of RECs**
- **Unexpected results**

Evaluation of Data

Evaluate data against assumptions

The assessment activities undertaken during the Phase II ESA generate data that need to be critically analyzed by the environmental professional (EP) before being interpreted with respect to the contamination of the subject property. During the work planning stage, the EP had to generate certain assumptions about the condition of the subject property. The assumptions are based on the information available at the outset of the assessment. Assumptions also include combining the available information with training, experience, and expertise of the EPs. Based on the assumptions, the EPs create a mental picture of the migration potential of the contaminants on the property. Often, the EPs actually generate a conceptual site model including a drawing with written explanations before collecting the samples. During interpretation, the conceptual site model is evaluated using the data from the assessment activities.

E 1689 *Guide for Developing Conceptual Site Models for Contaminated Sites* [1] is an ASTM Standard that provides helpful reference for this process. The Standard is more applicable to sites where the contamination has already been confirmed and more data are available, but the principles behind the conceptual site model are the same and equally applicable to Phase II ESAs. Figure 7.1 depicts a conceptualization approach for a landfill.

At the outset of Phase II ESAs, the EPs usually do not have as much detailed information as is shown in Figure 7.1, and the conceptualization process is considerably more simplistic, based more on assumptions than on actual data. As the Phase II ESA gets

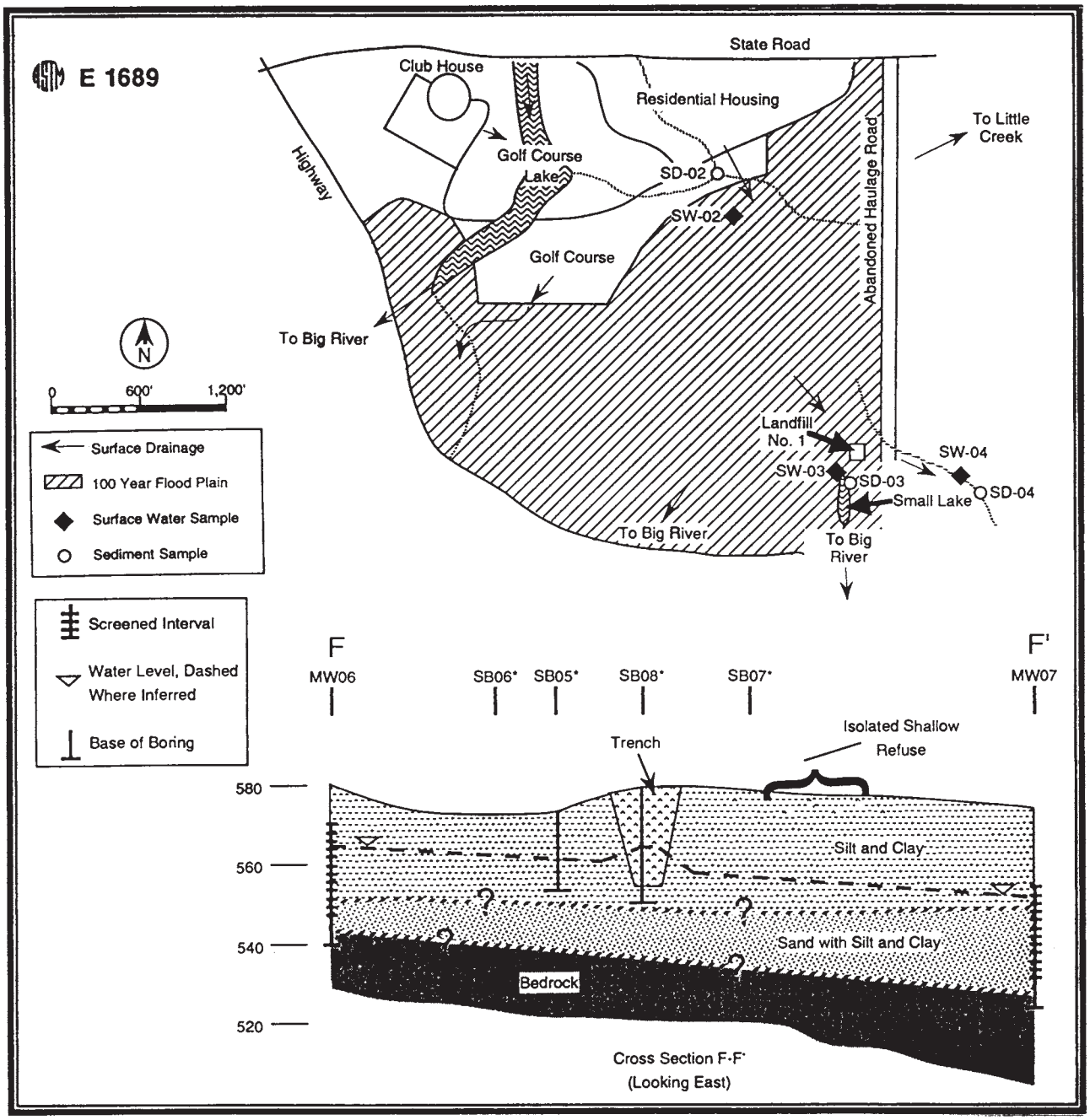


Figure 7.1 Conceptual model (adapted from ASTM E 1689).

underway, more data become available that may require changes in the assumptions and adjustments to the conceptual model.

The exploration or sampling activities during the Phase II ESA generate actual knowledge about the assumed properties such as soil or aquifer permeability, depth to the water table, groundwater flow direction, and characteristics of the contaminants. E 1903 [2] uses an observation well example shown in Figure 7.2 to demonstrate how the initial assumptions are sometimes in error.

Data affects results interpretation

The actual information gained from the assessment activities can significantly affect the results interpretation. If some of the assumptions were incorrect, the EPs may not have sufficient information to form conclusions or opinions with respect to the RECs under investigation. The data may also uncover new RECs that were previously not identified. Often, the EPs choose not to use the conceptual site model in Phase II investigations. This omission can lead to flawed interpretation of the data. The obvious advantage of using a conceptual site model is that it clearly identifies the assumptions and provides a mechanism to verify those assumptions at the time when the EPs are interpreting the results.

EP must verify quality of data

E 1903 requires one additional step in the evaluation of data. It involves verification of the data. Let's assume that the laboratory result identified a single contaminant that does not appear reasonable, considering all of the other factual data associated with the REC under investigation. At this point, the EP should review the QA/QC procedures to determine whether the contaminant could have been introduced into the sample. Certain steps during the sampling process, such as documentation of sampling parameters, blanks, and duplicates, can help in verification of the data but increase the cost associated with the collection and analytical portion of the Phase II ESAs. However, the additional cost can be considerably lower than having to mobilize and retest again. Many EPs discuss QA/QC procedures with the user to make them aware of the impact of different QA/QC decisions.

Verification is especially important when evaluating screening data. For example, if an investigation generated 30 screening points, the verification of these data would include looking at how many points were re-screened. From a quality control perspective the screener should select re-screening points in areas where con-

Work plan

The work plan called for the installation of a number of observation wells, some of which were intended to be downgradient of areas where the releases may have occurred.

Data

The water levels measured in the wells might have indicated that ground water flowed in a different direction than that inferred for development of the description of work to be performed. Hence the wells were not downgradient of the potential release area, and their purpose was not met.

Conclusion

This result would indicate that additional site work would have to be done to successfully complete the Phase II ESA.

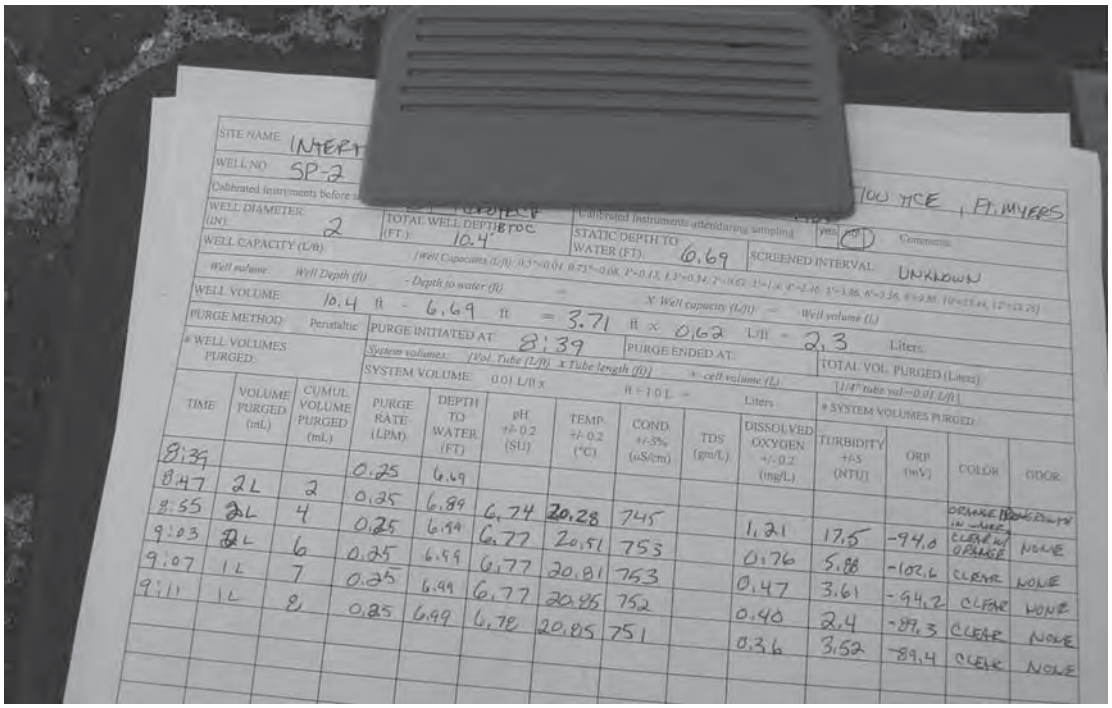
Figure 7.2 Example of results showing incorrect work plan assumptions (adapted from ASTM E 1903).

tamination was detected, as well as, screening points that resulted in non-detect results. The person performing the verification can then gain insight into potential repeatability error associated with the screening. In cases where screening indicates results that are likely to be above action levels, the verification process could include review of confirmatory laboratory sample data. Verification would also include review of calibration information for the screening instrument used.

Alternatively, verification of the data can involve re-examination of a conceptual site model and all of the sampling parameter information. Consider the following example where during a Phase I the EP hired by the prospective purchasers raised an issue with a neighboring property. The subject property was undeveloped land in an industrial zoned area adjacent to a refuse transfer station. In their analysis the EP theorized that the leachate pit one-quarter of a mile from the subject property, was likely to be contaminating the subject property and recommended a subsurface groundwater Phase II investigation on the subject property boundary. The investigation consisted of a direct push investigation in three locations along the boundary of the property. The ground was saturated at the time and water was encountered at 0–6 in. below the surface, and the samples were taken from a screened portion from 6 in. to 3 ft. below the surface. The samples were sent to a laboratory for analysis. The results from one of the three sampling points came back with elevated levels of ammonia. The EP concluded that the subject property was impacted by the leachate, as suspected. The EP did not include or perform any groundwater QC information parameter testing such as pH, turbidity, dissolved solids, etc., stating that it was not necessary for this kind of investigation. Purging information was also not documented. Figure 7.3 is an example of typical data collected in direct push sample collection that was omitted by the EP in this investigation. Figure 7.4 shows the typical instrumentation used to generate the parameter information.

Due to the omission of this QC step during sampling, an independent third party verification of the data could not be done. The subsequent review of the laboratory results revealed that although the ammonia was present, the rest of the results did not resemble a typical leachate fingerprint, but rather that of a cattle urine. Subsequent investigation by the owner's EP revealed that cattle were occasionally brought onto the property, resulting in relatively localized and temporary elevation of ammonia in surface water. The sampling technique of the EP caused the surface impacts to be drawn into the sampling point. The timing of the investigation caused the prospective purchaser to loose his $50 000 deposit, and loss of the sale to another purchaser. The prospective purchasers sued their EP for loss of the deposit and loss of the sale.

The common question that the environmental professional is trying to answer as part of the data verification processes described above is: *How confident are we that the data obtained is sufficiently accurate and representative of the conditions under investigation?*



SITE NAME: INTERT
WELL NO: SP-2
Calibrated Instruments before sampling
WELL DIAMETER (IN): 2
TOTAL WELL DEPTH (FT): 10.4 BTOC
Calibrated Instruments attendant during sampling
STATIC DEPTH TO WATER (FT): 6.69
SCREENED INTERVAL: UNKNOWN
WELL CAPACITY (L/ft)
WELL VOLUME: 10.4 ft - 6.69 ft = 3.71 ft x 0.62 L/ft = 2.3 Liters
PURGE METHOD: Peristaltic
PURGE INITIATED AT: 8:39
PURGE ENDED AT:
TOTAL VOL. PURGED (Liters)
WELL VOLUMES PURGED
SYSTEM VOLUME
SYSTEM VOLUMES PURGED

TIME	VOLUME PURGED (mL)	CUMUL. VOLUME PURGED (mL)	PURGE RATE (LPM)	DEPTH TO WATER (FT)	pH +/- 0.2 (SU)	TEMP. +/- 0.2 (°C)	COND. +/-5% (uS/cm)	TDS (gm/L)	DISSOLVED OXYGEN +/- 0.2 (mg/L)	TURBIDITY +/-5 (NTU)	ORP (mV)	COLOR	ODOR
8:39			0.25	6.69									
8:47	2L	2	0.25	6.89									
8:55	2L	4	0.25	6.94	6.74	20.28	745		1.21	17.5	-94.0	ORANGE IN WEL	STRONG H2S
9:03	2L	6	0.25	6.99	6.77	20.51	753		0.76	5.88	-102.6	CLEAR W/ ORANGE	NONE
9:07	1L	7	0.25	6.99	6.77	20.81	753		0.47	3.61	-94.2	CLEAR	NONE
9:11	1L	8	0.25	6.99	6.78	20.85	752		0.40	2.4	-89.3	CLEAR	NONE
						20.85	751		0.36	3.52	-89.4	CLEAR	NONE

Figure 7.3 Sampling QC parameter documentation.

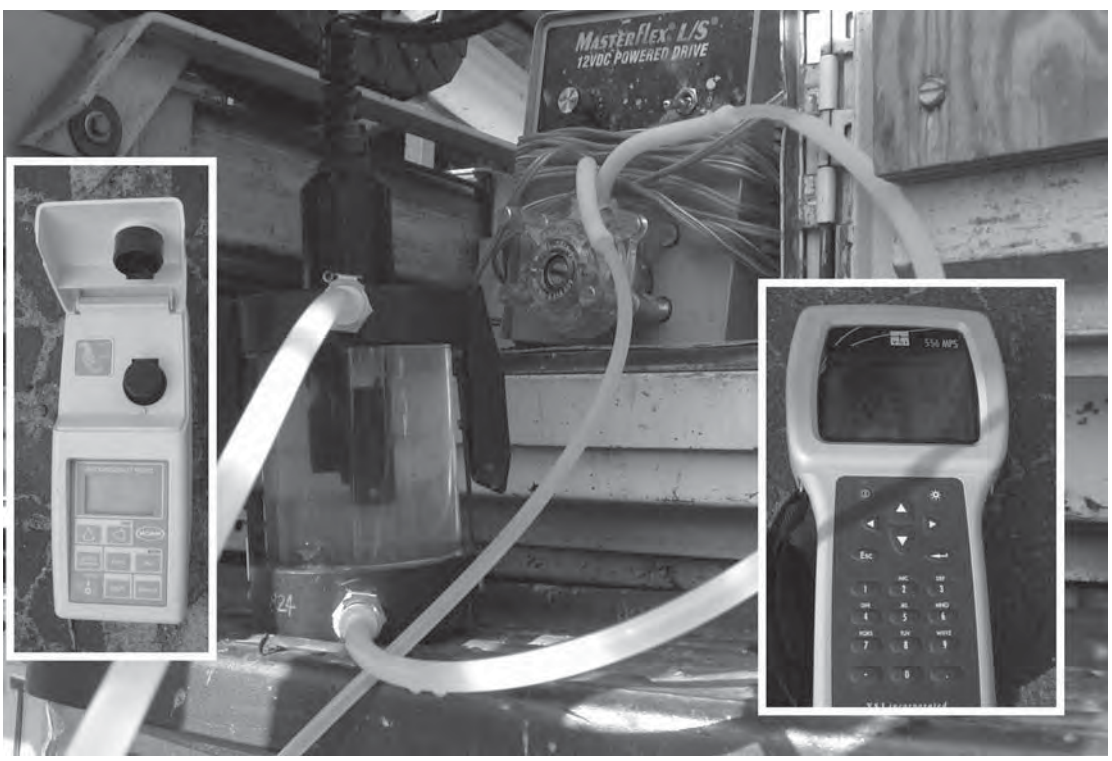


Figure 7.4 Sampling parameter instruments: turbidity meter (left insert), well water with a sensor (center), pump (top), and data readout and control unit (right insert). Photograph by Zdenek Hejzlar.

Interpretation of Results

Once the quality of the data is determined to be acceptable, the EP can move to the next step in the Phase II ESA process, which involves the interpretation of the results. The goal of the interpretation is to draw conclusions about the contamination at the subject property and whether the results are sufficient for the user to reach a business decision. The decision flow chart in Figure 7.5 outlines the possibilities in the interpretation process.

Is the information sufficient for a business decision?

The flow chart demonstrates that the results of Phase II ESA testing either confirm the presence of contaminants or confirm that no contamination is detected at the selected sampling locations. The fact that the sampling did not detect contamination is not a guarantee that contamination is not present at the property. The result, however, may be sufficient for the environmental professional to conclude that there is no reasonable basis to suspect that the subject property is contaminated with the contaminant under investigation. If this opinion is sufficient for the user to make the business decision, the Phase II ESA may be concluded at that point. The user may want a report at that point or a written statement of the EP's opinion. It is up to the user and the EP to agree on the manner in which the results are presented.

The other potential outcome of the Phase II ESA is that contaminants are detected. When the testing results in the detection of contaminant(s), the next question will be, how much? The agreed-upon work plan may be so limited that the EP may not have sufficient data to generate any quantitative opinions. For example, if the users are initially very optimistic that the property is not contaminated, they may severely limit the number of samples taken. When a contaminant is detected, the EP has very limited data to determine levels of the contaminant on the property. Even if the samples provide quantitative data, they may not be representative of the condition of the property beyond the sample location. If the user needs to know more about the contamination, additional iterations of the Phase II ESA may have to follow. On the other hand, a simple detection of the contaminant may be sufficient for the user to make a decision.

Elimination of RECs

Opinion: No reasonable basis to suspect contamination

Section 10.2 of E 1903 relates the contaminant confirmation issue to the ability of the EP to eliminate the REC. This section tended to have varied interpretation until the concept of Historical Recognized Environmental Condition (HREC) was incorporated into the E 1527 Standard in the 2000 revision. Once the condition has been identified as a REC, the subsequent Phase II investigations can help to assist the user in determining whether the HREC is or is not a REC currently. Thus, if the Phase II investigation results fail to detect contamination, the environmental professional can opine that *there is no reasonable basis for suspecting the disposal or release of hazardous substances at the site, and therefore no fur-*

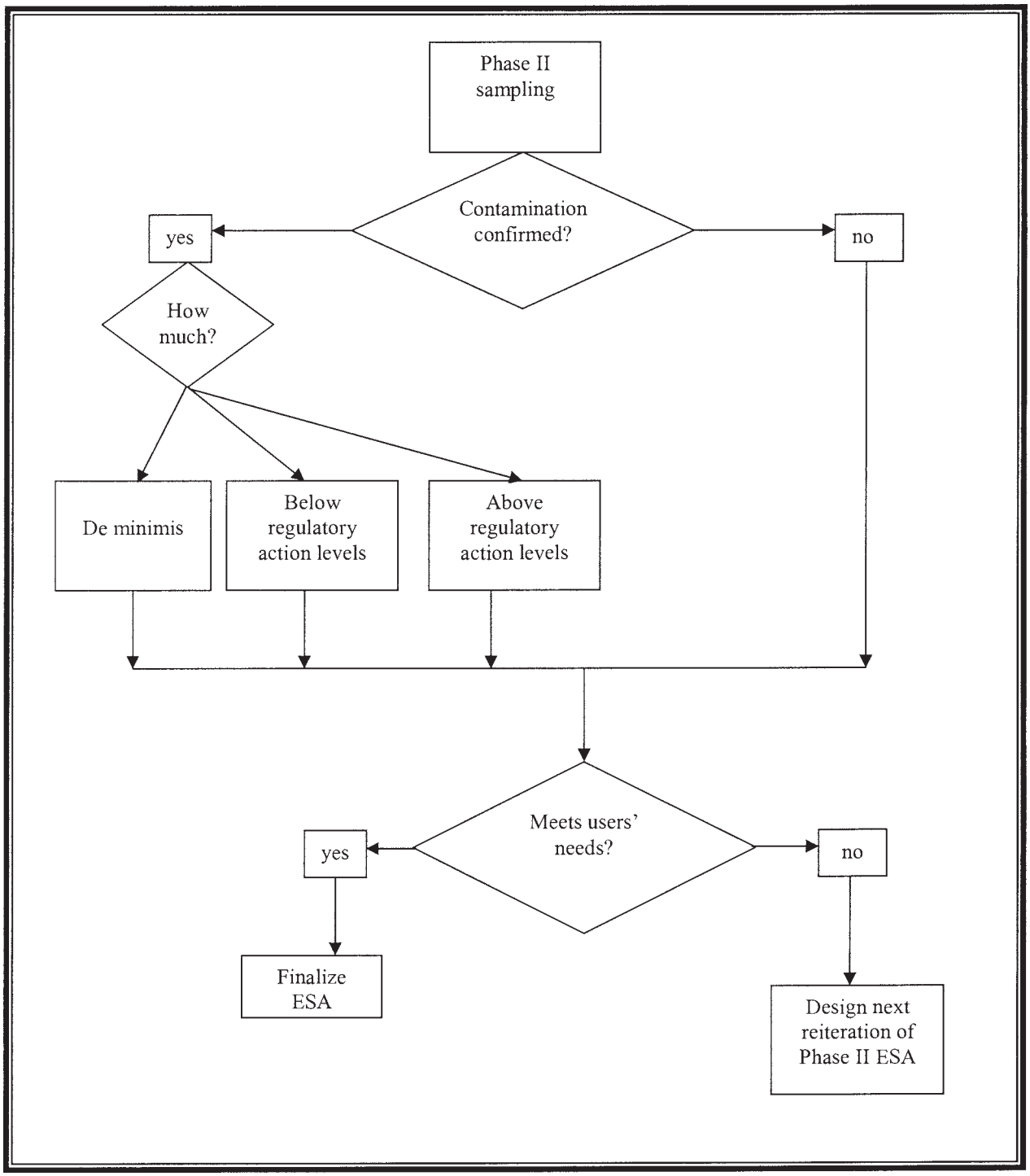


Figure 7.5 Phase II ESA result interpretation process.

ther work is necessary to satisfy the "all appropriate inquiries." In this manner the HREC is not a current REC.

Many formerly contaminated sites have undergone remediation. Sometimes a Phase II investigation is conducted to confirm the effectiveness of remediation. If the results fail to detect contamination the environmental professional may opine that *the remediation has been successful, and there is no reason to suspect that the subject is currently contaminated*. The REC has been eliminated and became a HREC with no current impacts, and is thus not a current REC.

In a number of cases, if the site has been rehabilitated and meets the state criteria, the owner of the property may have a "no further action" (NFA) letter from the agency in charge. This condition may be sufficient for the EP to conclude that the HREC is not a current REC. Prior to making this determination, many EPs will review the

Case Study on Unexpected Results

The subject site is a Colorado Department of Transportation (CDOT) maintenance facility located in Conifer, Colorado, in the mountains southwest of Denver. The owners of the adjacent property to the south were bringing litigation against CDOT alleging salt infiltration from a CDOT sand/salt pile and petroleum contamination migration onto their property. The neighbors were claiming that the migration of contaminants onto their property diminished the value of their property. See associated site sketch.

Neighboring property

The neighbor's property was served by a water supply well (240 feet deep) and two separate septic systems. The neighbor also operated a retail gas and service station and vehicle towing businesses on their property. Six active underground storage tanks (USTs) present on the neighbor's property were used to store both gasoline and diesel fuel. One existing monitoring well was present on the west side of the UST which showed evidence of contamination. The motor repair facility had floor drains, which discharged to a pit behind the station.

Subject CDOT property

At the time of the investigation in 1995, no active maintenance operations were performed at the CDOT site, although from approximately 1955 until 1985 the facility had been used for vehicle repair and service. An UST, removed in 1989, was used to store diesel fuel. A leak from the UST piping was discovered and corrected in 1979. The site was served by an onsite water supply well and septic system. The water supply well (60 feet deep) was impacted by hydrocarbons. Throughout its history the site was used for the storage of a sand/salt pile. The pile was placed directly on the ground surface and was not covered.

Financial issues before litigation

The neighbor was seeking $500 000 in damages from CDOT for impacts to his property by petroleum and salt. CDOT offered $100 000 to settle before the case went to litigation.

Figure 7.6 Case study on unexpected results (adapted from ASTM Phase II TPT class [3]).

Phase II ESA results

Phase II ESA was conducted to determine the magnitude and source of contaminants. Both properties were included in the investigation. Portions of the neighbor's property were impacted by salt runoff from CDOT, and the groundwater aquifer was impacted by salt. The salt runoff had not impacted the station or the USTs. The petroleum contamination on the neighbor's property was caused by conditions related to the neighbor's UST. Nine feet of product was discovered in a monitoring well adjacent to the neighbor's UST. The court judgment required CDOT to compensate the neighbor for a new water supply well at a cost of $40 000. The discovery of petroleum contamination resulted in the neighbor being liable for cleanup of the contamination.

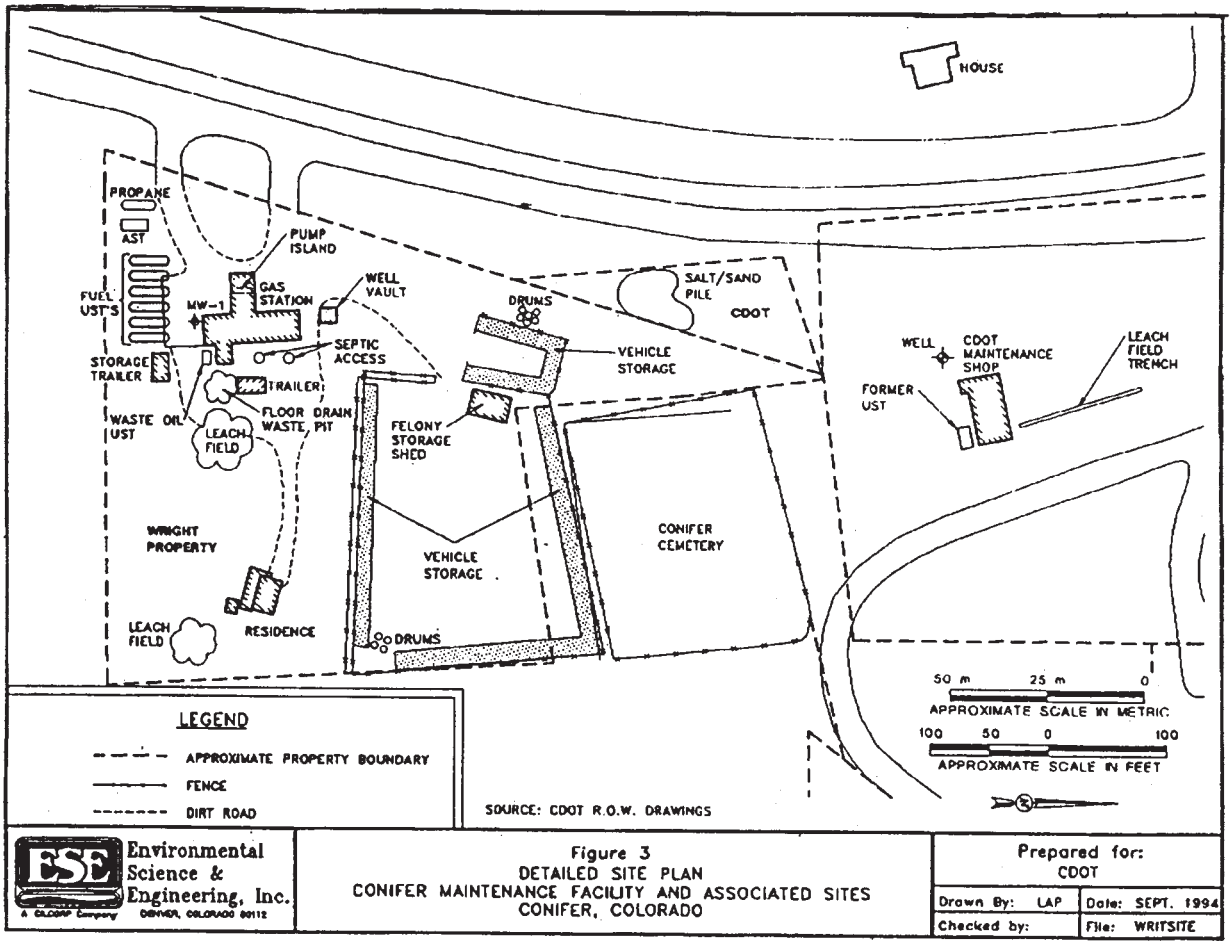


Figure 7.6 Case study on unexpected results.

sampling results that were used by the state to issue the letter. This additional research is used by the EP to gain an understanding of the criteria under which the NFA letter was issued in their evaluation of the HREC.

Unexpected Results

Unexpected contamination level, location or new REC

Sometimes the sampling activities generate unexpected results. The first task associated with analyzing data is to verify whether the generated data support or contradict the assumptions of the conceptual site model. For example, the EP may have assumed that the highest concentration of the contaminant would be at point A, and it turns out to be at point B. High concentration at point B may be indicative of a different source of contamination than that originally assumed.

The testing may also uncover contamination associated with an entirely different release which may not have been previously identified. Before the users decide to embark on a Phase II ESA, they should be aware that the potential for unexpected outcomes is real whenever sampling and exploratory activities are undertaken. Additionally, once the results are generated, there is no going back. Even if the results are not sufficient for regulatory action and the user does not get a written report, the data and documentation are out there and can surface in the future and in some potentially adverse setting such as in litigation during discovery.

Consider impact of unexpected results before the start of Phase II ESA

The case study in Figure 7.6 illustrates how unexpected Phase II ESA results can uncover new RECs and result in unexpected regulatory action. It illustrates several interesting aspects of Phase II ESAs. The Phase II ESA was embarked upon to investigate the sources of contamination and to determine the responsible parties for the cleanup. The owner filed a lawsuit against what he considered a deep pocket client. The defendant was willing to settle for a substantial amount of money. Considering the historical uses associated with his own property, the owner should have been aware of the potential for having to clean up the contamination caused by his leaking underground storage tanks.

Considering the potential for contamination, the plaintiff's attorney could have advised the client to take the settlement money offered. This could have averted the Phase II ESA being conducted by the defendant. If the attorney was not aware of the RECs and potential contamination of the subject property, he could have hired an environmental professional to assist in the evaluation of the contamination issues of the case. The settlement moneys could have been used to offset the cost of the cleanup.

Summary

In this chapter, we learned about the scientific approach to evaluation of data in order to enable the EPs to interpret the results of exploration and sampling activities of Phase II ESAs to form sound

scientifically based opinions. We raised the issues of unexpected results and their potential implications on EPs' ability to generate useful opinions and on users' ability to reach business decisions.

References

1. E 1689 *Guide for Developing Conceptual Site Models for Contaminated Sites*, ASTM 1995

2. E 1903 *Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process*, ASTM 1997

3. Technical & Professional Training *Phase II Environmental Assessment Process*, ASTM 1999

PART TWO

Chapter 8

Phase II Report

In this chapter, we will review E 1903 requirements with respect to Phase II ESA reports. We will discuss:

- **Reasons for and against preparation of a Phase II ESA report**
- **Introductory components**
- **Body of the report**
- **Appendices**

Reasons for and Against Preparation of a Phase II ESA Report

Report is not required

Perhaps the most significant difference with respect to Standard requirements between E 1527 [1] and E 1903 [2] is that the Phase I Environmental Site Assessment (ESA) requires a written report, while the Phase II Environmental Site Assessment does not. Whether the Phase II ESA report is prepared is subject to the contractual agreement between the user and the environmental professional (EP).

User may not need a report, or the ESA may be terminated early

There are many legitimate reasons why the user may want the EP not to prepare a report. The obvious one is a situation in which the user does not need a report. An example would be if the user wanted to confirm contamination at the site to decide whether to perform a site characterization. If the Phase II ESA confirms the contamination, the user will then go directly into the more complex site characterization ESA and does not need a Phase II ESA report.

Another reason why the user may not want a report is in a situation when a finding discovered during the course of the Phase II investigation is sufficient to terminate the transaction. Spending additional efforts and money to complete the work and prepare the report would constitute a waste of time and money.

An important consideration is the cost associated with preparation of the report. As outlined in E 1903, the purpose of a Phase II ESA report is to *describe the work performed and provide documentation of the data and evaluation*. The evaluation, as we discussed in the last chapter, provides the basis for opinions that the EP has

reached. In order to achieve that goal the report must be factual, scientifically founded and support the conclusions of the EPs. E 1903 requires the report to have the following characteristics:

- Good technical writing
- Clear and accurate presentation of the results and conclusions
- Recommendations (if requested by the user)

A report can add significant expense

Preparation of a Phase II ESA report can be a time consuming and relatively expensive undertaking. Unlike the Phase I ESA report, which many professionals have automated by using the boiler plate approach for the repetitive parts, the diversity of Phase II ESAs is not well suited to automation. Each report is unique and requires careful attention to detail and site-specific characteristics associated with the recognized environmental conditions (RECs) under study. Preparation of the report, when compared to other Phase II ESA activities, can take up a significant portion of the project. If given the option, the user may choose to use the generated raw data combined with verbal communications and forgo the tedious and expensive task of a report preparation. It is a good practice to discuss the cost of report preparation with the user or list it as a separate item in the bid. Another option for the user is to have the EP summarize conclusions in a brief letter format rather than in the lengthy report.

From a legal standpoint, the EP should not prepare a Phase II ESA report unless specifically contracted to do so. If the user did not request a report and the EP provides one anyway, the user may decide not to pay for a portion of the assessment. The EP has little recourse when trying to collect fees for tasks not included in the contract.

Documentation is required regardless

The EPs should not construe the non-mandatory aspect of the Phase II ESA report to imply that the EPs do not need to document work, or that they can exercise a lower level of professionalism. As described in earlier chapters, E 1903 requires the EPs to sufficiently document all activities, any sampling results, and conclusions reached. The fact that no report is prepared at the end of the process does not mean that the EP's file will be empty.

A quality report is a marketing opportunity

A well written Phase II ESA report provides the EPs with a marketing opportunity to demonstrate value, quality and professionalism. Conversely, a poorly written report can make valuable, quality information appear shoddy and unprofessional. Given the opportunity to submit a report at the conclusion of the Phase II ESA, the EPs should spend sufficient time and effort to demonstrate value and competence.

Section 11 of E 1903 is a tool to organize the work product

Preparation of a Phase II ESA report also allows the EP the opportunity to finish the process and organize all of the work product into a clear, documented and easy to follow package.

Familiarity with Section 11 of E 1903 is helpful in reviewing the completed Phase II ESA work and organizing the work product. The section summarizes the issues discussed in various portions of the Standard and suggests where they should be presented in the report.

Figure 8.1 depicts the E 1903 suggested format for the Phase II ESA report. The format is a tabulated presentation of topics of Section 11 in E 1903. This section of the Standard provides further guidance with respect to each of the items listed in the figure. In many cases the Phase II ESA report will not address many of the issues listed in the figure. The format of the report could thus be significantly simplified to address only those concerns of interest to the user. In the remainder of this chapter, we will discuss general components of the report.

Introductory Components

The introductory components of the Phase II ESA report generally consist of a transmittal letter, cover page, table of contents, and executive summary.

Transmittal letter Cover page Table of contents Executive summary

According to E 1903, the intent of the transmittal or cover letter is to document the date of the report's delivery and to identify the recipient of the report. In practice, this may not necessarily be accurate. The date of the letter only identifies the date on which the report left the custody of the EP. The date when the report was completed may be the more significant date in terms of documentation. The date of the report preparation usually appears on the cover page. Presenting different dates in the cover letter and on the cover page may cause confusion and provides yet another opportunity for errors to occur. If the intended recipient is also named on the cover page of the report, the information also becomes redundant. For these reasons, many Phase II ESAs do not include a transmittal letter.

The cover page may include the recipient and the author of the report together with the subject property identification and any confidentiality clauses deemed appropriate.

The executive summary is a concise overview of the findings and only includes materials discussed in the body of the report. A well conceived executive summary alerts the reader to the important aspects of the report. However, many EPs believe that the main reason why some users like executive summaries is that once they have read the summary they feel no need to read further. From a practical standpoint, if the EPs want to convey pertinent information to the user, they can either include it in the executive summary or leave the executive summary out of the report.

Body of the Report

Introduction

The Introduction section generally identifies the purpose and scope of the Phase II ESA, terms of the contract, conditions and limitations. E 1903 also suggests identifying items that are not included in the scope that may have been expected to be included. This can be a difficult task, as it requires the EP to determine what would

PHASE II ESA REPORT FORMAT

1 Executive Summary

2 Introduction
- *Purpose*
- *Special Terms and Conditions*
- *Limitations and Exceptions of Assessment*
- *Limiting Conditions and Methodology Used*

3 Background (may be by reference to prior environmental reports):
- *Site Description and Features*
- *Physical Setting*
- *Site History and Land Use*
- *Adjacent Property Land Use*
- *Summary of Previous Assessments*

4 Phase II Activities
- *Scope of Assessment*
  - *Supplemental Record Review*
  - *Conceptual Site Model and Sampling Plan*
  - *Chemical Testing Plan*
  - *Deviations from the Work Plan*
- *Field explorations and Methods*
  - *Test Pits*
  - *Test Borings*
  - *Monitoring Well Installations*
    - *Ground water elevation measurement*
    - *Ground water flow direction*
  - *Other*
- *Sampling and Chemical Analysis Methods*
  - *Soil*
  - *Ground Water*
  - *Other*

5 Evaluation and Presentation of Results
- *Subsurface Conditions*
  - *Geologic Setting*
  - *Hydrogeologic Conditions*
  - *Verification of Conceptual Site Model*
- *Analytical Data*
  - *Soil*
  - *Ground Water*
  - *Other*

6 Discussion of Findings and Conclusions
- *Recognized Environmental Conditions*
- *Affected Media*
- *Evaluation of Media Quality*
- *Other Concerns (for example, adequacy of assessment)*

7 Recommendations (if desired by user)

8 References and Appendices

Figure 8.1 Example of a Phase II ESA report format (adapted from ASTM E 1903).

and would not be expected, and it could potentially lead to exhaustive listings and explanations of non-scope items. The EP should limit the introduction to items significant and useful to the user.

Background information

The background information section of the report lists all the pertinent information provided to the EP in preparation and development of the scope of the assessment. It also identifies the RECs to be investigated in the Phase II ESA and the reasons for their selection. RECs are identified at the outset of the process by either the user or the EP. The background information should clearly identify who selected the RECs for the investigation.

Phase II activities

The Phase II ESA activities section accurately documents the work performed. The bulk of the documentation relating to QA/QC activities and methodologies utilized may be presented by reference and included in appendices. This enables the peripheral information to be separated from the main body of the report and provides for clearer presentation of significant issues.

Evaluation and presentation of results Discussion Review and signatures

The evaluation and presentation of results section of the report should clearly identify and separate facts, findings, assumptions, and opinions.

The discussion section reviews the significance of the findings. It should list conclusions and opinions reached and identify the scientific and factual basis for those conclusions. Recommendations should only be included if desired by the user. The scientific and factual basis should support any recommendations made.

The report should be signed by the environmental professional responsible for the report. Many EPs also include a technical review and signature by other professional members of the firm. The technical content review may be performed by a person not necessarily involved in the Phase II ESA. The review provides an additional level of quality control and may note errors or inconsistencies not readily apparent to someone closely involved with the project. The EP may include a seal or professional license number if required. If the Phase II ESA was performed as part of or for the purposes of Brownfields Amendment, the report may need to include applicable statements and declarations similar to those used in the Phase I assessments.

Appendices

Supplemental and helpful reference information

Phase II ESA reports often include many items that were used to develop the scope of the work, conclusions, and opinions. The bulk of the material does not need to be presented in the body of the report. Referencing the information and providing it in appendices makes the main body of the report less bulky and easier to read. The EP should consider who is going to read the report. Although scientific information is being presented, the target audience may not have extensive scientific background, and some of the information may be confusing. The appendices are used for documen-

tation such as subsurface exploration logs, laboratory reports, quality control information, regulatory references, and Standards that the reader is unlikely to review in depth.

Whenever photographs are included in the appendices, it is helpful to provide the reader with a description under each photograph or a summarized index to photographs at the beginning of a specific appendix section.

CVs and qualification statements

The information in the appendices should be logically organized. If numerous appendices are being presented, an index to appendices should be provided. It is also useful to clearly separate the appendices with visual aids such as colored pages or tabs to enable the reader to quickly access the section of interest. Providing curriculum vitae and company's scope of services statements as one of the appendices provides another soft marketing opportunity for the EPs.

Summary

In this chapter, we identified that a written report is not required by the E 1903 Standard. We discussed numerous reasons why the user may not want a written report. For the times when the user requests a report, we reviewed the major components of Phase II ESA reports.

References

1. E 1527 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM 2005

2. E 1903 *Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process*, ASTM 1997

PART TWO

Chapter 9

Dealing with Non-Scope Issues

In this final chapter, we will review issues that E 1903 identifies as beyond the scope of the Standard. These issues are integral parts of the Phase II ESAs and must be addressed in the process by the environmental professional and the user. We will review:

- **Issues beyond CERCLA/LLP**
- **Standards and regulations**
- **Contracting and subcontracting**
- **Safety and health**
- **Confidentiality**
- **Recommendations**
- **Business judgments**
- **Legal risks**

Issues Beyond CERCLA/LLP

Many ESAs include issues beyond the CERCLA/LLPs

The principles of the E 1903 Standard [1] are used for guidance in many environmental investigations where CERCLA and the Limited Liability Protections (LLPs) under CERCLA are not the determining issues. Throughout this book, we have reviewed many examples where the users' needs extended the Environmental Site Assessment (ESA) investigation of issues beyond the core scope of CERCLA. Various sections of the Standard include reference to issues that are beyond the scope of E 1903. The issues are reviewed and discussed in this chapter.

Standards and Regulations

Users' needs may not be addressed by a single Standard

Including non-scope issues does not necessarily mean that the EP failed to meet the requirements of the Guide or misapplied E 1903. For any scientifically based investigation, it is appropriate to review and use any applicable standards or regulations if they are available. In many instances, the needs of the user in a commercial transaction are unique to the conditions of the property or a particular issue associated with the transaction. Many of these issues may not be specifically addressed by a single standard. The EPs then may apply the principles of E 1903 to design a specific ESA that meets users' needs. Often, certain portions of the ESA or spe-

cific recognized environmental conditions (RECs) may be governed by specific standards or regulations. The primary reason for using the E 1903 Standard in these cases is to provide the framework to organize various assessment activities under one umbrella, utilizing a sound scientific approach. The various individual ESA activities become a subset of the Phase II ESA. Figure 9.1 shows the approach.

The circles in Figure 9.1 represent various Phase II ESA activities governed by specific standards and regulations. Depending on users' needs, they can all be included in the Phase II assessment. Some of the activities represent CERCLA portions of the assessment and are represented as the large circle. Additional activities that are governed by related regulation such as RCRA are depicted as circles that share a portion of the area with the CERCLA circle. This is because some of the issues that are regulated by the two separate regulations overlap. For instance, the user may want to look at RCRA conformance at the site and that activity provides information related to CERCLA/LLPs. The separate circles represent activities that do not have any overlap with CERCLA/LLPs. An example would be where a portion of the property is designated

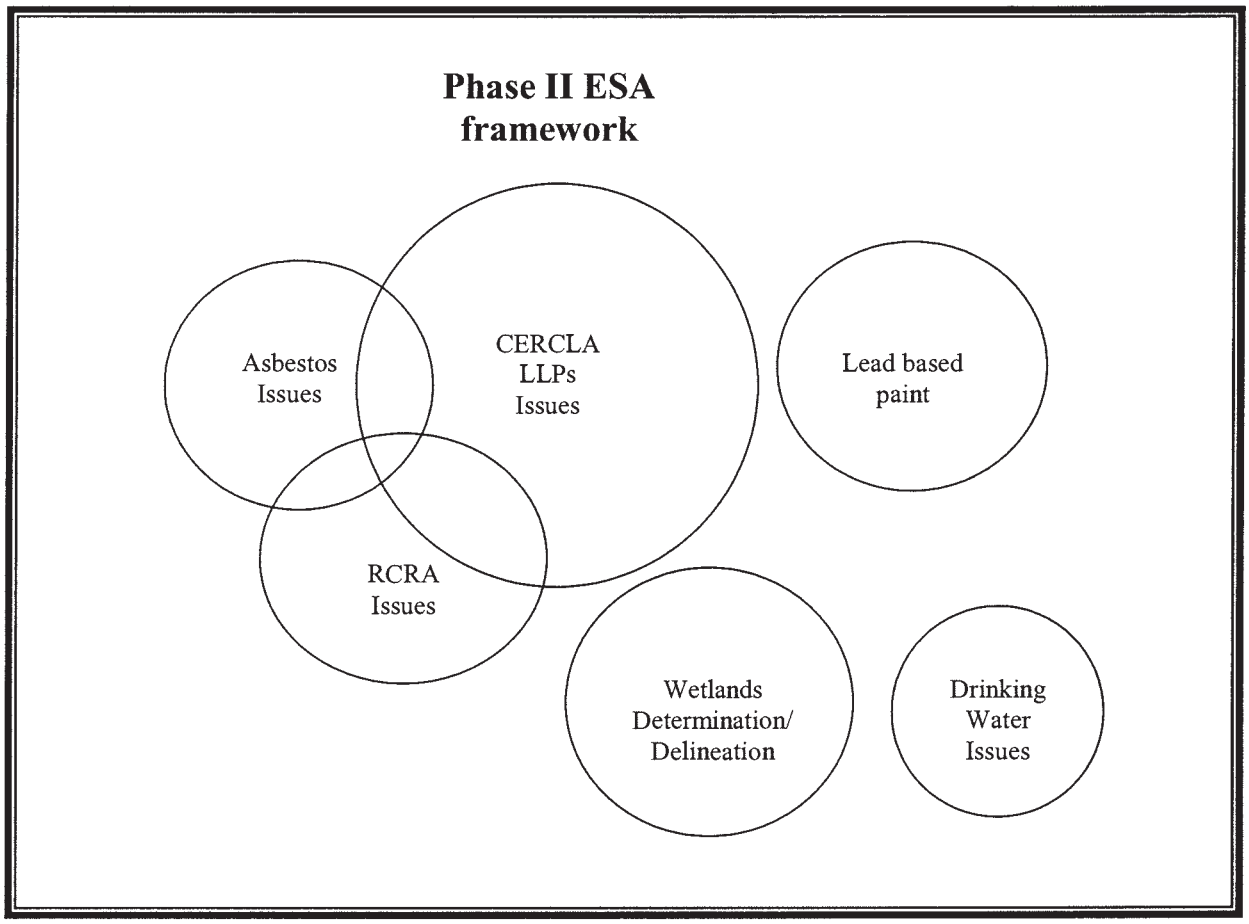


Figure 9.1 Phase II ESA incorporating ESA activities not in E 1903.

as a wetland, and as part of the Phase II ESA the user would like some preliminary information about the possibility of developing a portion of the wetland. The asbestos issues are depicted overlapping with both RCRA and CERCLA, as they sometimes overlap within the regulatory framework. For example, both regulations may be applicable if asbestos-containing materials from a demolished building were disposed of at the site. The drinking water issues are depicted as ESA activities independent of the CERCLA/LLP activities. If the assessment is done for the EPA Brownfields Program, the assessment must include controlled substances that are not typically included in Phase I or Phase II assessments targeting LLPs in commercial real estate transactions.

Contracting and Subcontracting

EPs and users develop a mutually agreeable contract

Contracting issues were discussed in Chapter 5. The contracting and subcontracting specifics are not part of the E 1903 scope. They are invariably a part of every Phase II ESA. During the Phase I ESA the contract can simply state that the EP agrees to perform the assessment in accordance with the scope of E 1527 [2]. The tasks associated with Phase I ESA are sufficiently defined and specified in E 1527. By contrast, the E 1903 scope is very broad and the Standard only lists several contracting considerations for the EPs to consider. The user and the EP must therefore develop a mutually agreeable contract. E 1903 does not sufficiently specify particular tasks and duties to be applied in the same manner as E 1527.

The subcontracting portion(s) of the work associated with Phase II ESA activities to other companies or individuals adds the inherent risk of being sued along with any of the subcontractors. It is common in Phase II investigation to subcontract various portions of the investigation, such as drill and direct push rigs (Figure 9.2). Law-

Figure 9.2 GeoProbe services are frequently subcontracted. Courtesy of JAEE Environmental, Davie Fla. (Photograph by Zdenek Hejzlar).

suits generally try to include as many parties as possible. As demonstrated in Chapter 5, the EP can be held partially responsible for errors or wrongdoing by any of the subcontractors.

It is noteworthy that many subcontractors such as in the unit depicted do not engage in visible advertising such as on the side of the equipment. This is sometimes called for in contracts, as a number of clients may be sensitive to advertise to casual observers that any environmental investigation is going on at their property. Some states, however, require that name and company name be displayed, especially for services such as water drilling, waste hauling, etc.

Safety and Health

EPs are responsible for their own safety

In Chapter 7 of Part One of this manual, we discussed the safety and health issues that may be associated with Phase I and Phase II ESAs. They are considered beyond the scope of E 1903. Many of these issues are site and transaction specific and must be taken into consideration by the EPs. The EPs conducting environmental site investigations are responsible for their own safety. Training and experience in health and safety issues appropriately applied during Phase II ESAs helps to ensure safe and successful completion of projects.

Confidentiality and Disclosure

Confidentiality issues are also considered beyond the scope of E 1903. The user who pays for the Phase II ESA can generally claim ownership of the work product. Phase II ESAs are designed to confirm the presence of contamination. The contaminant and the level detected may be subject to reporting requirements on federal, state, or local level. The disclosure, confidentiality requirements and ownership of the work product are an integral part of any Phase II ESA and must be addressed by the EP.

Recommendations

Recommend only if asked to

Recommendations are not included in the scope of E 1903. The Standard specifically states that recommendations should only be provided if the user requests them. Many Phase II investigations under governmental programs such as the Brownfields do require written recommendation.

Business Judgments

What the user decides to do with the information and the results generated from the Phase II ESA is up to the user and not discussed in the E 1903 Standard Guide. Business judgment often extends beyond of the scope of any work that the EPs provide for the user, although the EPs' input can play a significant role in the judgments.

Legal Risks

Contract, insurance and work quality

E 1903 does not address many of the legal risks that may be associated with performing Phase II assessments. The EPs' business judgment and risk tolerance is used to deal with these issues. By the act of hiring the EPs to perform Phase II ESAs, the users are spreading some of their liabilities to the EPs. This must be taken into consideration, and through contract/insurance and quality of work, the EPs need to adequately minimize the liability potential.

Summary

This chapter reviewed and summarized some of the many issues that are an integral part of Phase II ESAs and are not specifically addressed by E 1903. Previous chapters provided a number of specific examples that demonstrated practical applications of the concepts outlined in this chapter.

References

1. E 1903 *Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process*, ASTM 1997

2. E 1527 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, ASTM 2005

MNL43-EB/Jan. 2007

Federal Register

Tuesday,
November 1, 2005

Part III

Environmental Protection Agency

40 CFR Part 312

Standards and Practices for All Appropriate Inquiries; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 312

[SFUND–2004–0001; FRL–7989–7]

RIN 2050–AF04

Standards and Practices for All Appropriate Inquiries

AGENCY: Environmental Protection Agency.

ACTION: Final rule.

SUMMARY: The Environmental Protection Agency (EPA) today is establishing federal standards and practices for conducting all appropriate inquiries as required under sections 101(35)(B)(ii) and (iii) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Today's final rule establishes specific regulatory requirements and standards for conducting all appropriate inquiries into the previous ownership and uses of a property for the purposes of meeting the all appropriate inquiries provisions necessary to qualify for certain landowner liability protections under CERCLA. The standards and practices also will be applicable to persons conducting site characterization and assessments with the use of grants awarded under CERCLA section 104(k)(2)(B).

DATES: This final rule is effective November 1, 2006.

ADDRESSES: EPA established a docket for this action under Docket ID No. SFUND–2004–0001. All documents in the docket are listed in the EDOCKET index at *http://www.epa.gov/edocket*. Although listed in the index, some information is not publicly available, i.e., information labeled Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically in EDOCKET or in hard copy at the EPA Docket Center, EPA West Building, Room B102, 1301 Constitution Ave., NW., Washington, DC. This docket facility is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding Federal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the OSWER Docket is (202) 566–0276.

FOR FURTHER INFORMATION CONTACT: For further information on specific aspects of today's rule, contact Patricia Overmeyer of EPA's Office of Brownfields Cleanup and Redevelopment at (202) 566–2774 or at *overmeyer.patricia@epa.gov*. Mail inquiries may be directed to the Office of Brownfields Cleanup and Redevelopment (5105T), 1200 Pennsylvania Ave. NW., Washington, DC 20460.

SUPPLEMENTARY INFORMATION:

I. General Information

A. Who Potentially May be Affected by Today's Rule?

This regulation may affect most directly those persons and businesses purchasing commercial property or any property that will be used for commercial or public purposes and who may, after purchasing the property, seek to claim protection from CERCLA liability for releases or threatened releases of hazardous substances. Under section101(35)(B) of CERCLA, as amended by the Small Business Liability Relief and Brownfields Revitalization Act (Pub. L. 107–118, 115 stat. 2356, ''the Brownfields Amendments'') such persons and businesses are required to conduct all appropriate inquiries prior to or on the date on which the property is acquired. Prospective landowners who do not conduct all appropriate inquiries prior to or on the date of obtaining ownership of the property may lose their ability to claim protection from CERCLA liability as an innocent landowner, bona fide prospective purchaser, or contiguous property owner.

In addition, today's rule will affect any party who receives a brownfields grant awarded under CERCLA section 104(k)(2)(B) and uses the grant money to conduct site characterization or assessment activities. This includes state, local and tribal governments that receive brownfields site assessment grants for the purpose of conducting site characterization and assessment activities. Such parties are required under CERCLA section 104(k)(2)(B)(ii) to conduct such activities in compliance with the standards and practices established by EPA for the conduct of all appropriate inquiries. EPA notes that today's rule also may affect other parties who apply for brownfields grants under the provisions of CERCLA section 104(k), since such parties may have to qualify as a bona fide prospective purchaser to ensure compliance with the statutory prohibitions on the use of grant funds under Section 104(k)(4)(B)(I). Any party seeking liability protection as a bona fide prospective purchaser, including eligible brownfields grantees, must conduct all appropriate inquiries prior to or on the date of acquiring a property.

The background document, ''Economic Impacts Analysis for the Proposed All Appropriate Inquiries Final Regulation'' and the Addendum to this document provide a comprehensive analysis of all potentially impacted entities. These documents are available in the docket established for today's rule. A summary of potentially affected businesses is provided in the table below.

Our aim in the table below is to provide a guide for readers regarding entities likely to be directly regulated or indirectly affected by today's action. This action, however, may affect other entities not listed in the table. To determine whether you or your business is regulated or affected by this action, you should examine the regulatory language amending CERCLA. This language is found at the end of this **Federal Register** notice. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding section entitled **FOR FURTHER INFORMATION CONTACT.**

Industry category	NAICS code
Manufacturing	31–33
Wholesale Trade	42
Retail Trade	44–45
Finance and Insurance	52
Real Estate	531
Professional, Scientific and Technical Services	541
Accommodation and Food Services	72
Repair and Maintenance	811
Personal and Laundry Services	812
State, Local and Tribal Government	N/A

B. How Can I Get Copies of This Document and Other Related Information?

1. *Docket*. EPA established an official public docket for this action under Docket ID No. SFUND–2004–0001. The official public docket consists of the documents specifically referenced in this action, any public comments received, and other information related to today's action. Although a part of the official docket, the public docket does not include Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Documents in the official public docket are listed in the index list in EPA's electronic public docket and comment system, EDOCKET. Documents may be available either electronically or in hard copy. Electronic documents may be viewed through EDOCKET. Hard copy

documents may be viewed at the EPA Docket Center, EPA West, Room B102, 1301 Constitution Avenue, NW., Washington, DC. The EPA Docket Center Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding Federal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the OSWER Docket is (202) 566–0276.

2. *Electronic Access*. You may access this **Federal Register** document electronically through the EPA Internet under the ''**Federal Register**'' listings at *http://www.epa.gov/fedrgstr.*

An electronic version of the public docket also is available through EPA's electronic public docket and comment system, EDOCKET. You may use EDOCKET at *http://www.epa.gov/edocket/* to view public comments, access the index listing of the contents of the public docket, and access those documents in the public docket that are available electronically. Once in the system, select ''search,'' then key in the appropriate docket identification number.

Certain types of information will not be placed in EDOCKET. Information claimed as CBI and other information whose disclosure is restricted by statute, which is not included in the official public docket, will not be available for public viewing in EPA's electronic public docket. EPA's policy is that copyrighted material will not be placed in EPA's electronic public docket but will be available only in printed, paper form in the official public docket. Docket materials that are not available electronically may be viewed at the docket facility identified above.

Contents of Today's Rule

I. Statutory Authority

These regulations are promulgated under the authority of Section 101(35)(B) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601), as amended, most importantly by the Small Business Liability Relief and Brownfields Revitalization Act.

II. Background

A. What is the Intent of Today's Rule?

On August 26, 2004, EPA published a notice of proposed rulemaking outlining proposed standards and practices for the conduct of ''all appropriate inquiries.'' This regulatory action was initiated in response to legislative amendments to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). On January 11, 2002, President Bush signed the Small Business Liability Relief and Brownfields Revitalization Act (Pub. L. 107–118, 115 Stat. 2356, ''the Brownfields Amendments''). The Brownfields Amendments amend CERCLA by providing funds to assess and clean up brownfields sites, clarifying CERCLA liability provisions for certain landowners, and providing funding to enhance state and tribal cleanup programs. The intent of today's rule is to finalize regulations setting federal standards and practices for the conduct of all appropriate inquiries, a key provision of the Brownfields Amendments. Subtitle B of Title II of the Brownfields Amendments revises CERCLA section 101(35), clarifying the requirements necessary to establish the innocent landowner defense. In addition, the Brownfields Amendments add protections from CERCLA liability for bona fide prospective purchasers and contiguous property owners who meet certain statutory requirements.

Each of the CERCLA liability provisions for innocent landowners, bona fide prospective purchasers, and contiguous property owners, requires that, among other requirements, persons claiming the liability protections conduct all appropriate inquiries into prior ownership and use of a property prior to or on the date a person acquires a property. The law requires EPA to develop regulations establishing standards and practices for how to conduct all appropriate inquiries. Congress included in the Brownfields Amendments a list of criteria that the Agency must address in the regulations establishing standards and practices for conducting all appropriate inquiries

section 101(35)(2)(B)(ii) and (iii). The Brownfields Amendments also require that parties receiving a federal brownfields grant awarded under CERCLA section 104(k)(2)(B) to conduct site characterizations and assessments must conduct these activities in accordance with the standards and practices for all appropriate inquiries.

The regulations established today only address the all appropriate inquiries provisions of CERCLA sections 101(35)(B)(i)(I) and 101(35)(B)(ii) and (iii). Today's rule does not address the requirements of CERCLA section 101(35)(B)(i)(II) for what constitutes ''reasonable steps.''

B. What is ''All Appropriate Inquiries?''

An essential step in real property transactions may be evaluating a property for potential environmental contamination and assessing potential liability for contamination present at the property. The process for assessing properties for the presence or potential presence of environmental contamination often is referred to as ''environmental due diligence,'' or ''environmental site assessment.'' The Comprehensive Environmental Response Compensation and Liability Act (CERCLA) or Superfund, provides for a similar, but legally distinct, process referred to as ''all appropriate inquiries.''

Under CERCLA, persons may be held strictly liable for cleaning up hazardous substances at properties that they either currently own or operate or owned or operated at the time of disposal. Strict liability in the context of CERCLA means that a potentially responsible party may be liable for environmental contamination based solely on property ownership and without regard to fault or negligence.

In 1986, the Superfund Amendments and Reauthorization Act (Pub. L. No. 99–499, 100 stat. 1613, ''SARA'') amended CERCLA by creating an ''innocent landowner'' defense to CERCLA liability. The new section 101(35)(B) of CERCLA provided a defense to CERCLA liability, for those persons who could demonstrate, among other requirements, that they ''did not know and had no reason to know'' prior to purchasing a property that any hazardous substance that is the subject of a release or threatened release was disposed of on, in, or at the property. Such persons, to demonstrate that they had ''no reason to know'' must have undertaken, prior to, or on the date of acquisition of the property, ''all appropriate inquiries'' into the previous ownership and uses of the property consistent with good commercial or customary standards and practices. The 2002 Brownfields Amendments added potential liability protections for ''contiguous property owners'' and ''bona fide prospective purchasers'' who also must demonstrate they conducted all appropriate inquiries, among other requirements, to benefit from the liability protection.

C. What Were the Previous Standards for All Appropriate Inquiries?

As part of the Brownfields Amendments to CERCLA, Congress established interim standards for the conduct of all appropriate inquiries. The federal interim standards established by Congress became effective on January 11, 2002. In the case of properties purchased after May 31, 1997, the interim standards include the procedures of the ASTM Standard E1527–97 (entitled ''Standard Practice for Environmental Site Assessments: Phase 1 Environmental Site Assessment Process''). In the case of persons who purchased property prior to May 31, 1997 and who are seeking to establish an innocent landowner defense or qualify as a contiguous property owner, CERCLA provides that such persons must establish, among other statutory requirements, that at the time they acquired the property, they did not know and had no reason to know of releases or threatened releases to the property. To establish they did not know and had no reason to know of releases or threatened releases, persons who purchased property prior to May 31, 1997 must demonstrate that they carried out all appropriate inquiries into the previous ownership and uses of the property in accordance with generally accepted good commercial and customary standards and practices.

In the case of property acquired by a non-governmental entity or non-commercial entity for residential or other similar uses, the current interim standards for all appropriate inquiries may not be applicable. For those cases, the Brownfields Amendments to CERCLA establish that a ''facility inspection and title search that reveal no basis for further investigation shall be considered to satisfy the requirements' for all appropriate inquiries. In addition, such properties are not within the scope of today's rule.

The interim standards remain in effect only until the effective date of today's rule which promulgates federal regulations establishing standards and practices for conducting all appropriate inquiries.

On May 9, 2003, EPA published a final rule (68 FR 24888) clarifying that for the purposes of achieving the all appropriate inquiries standards of CERCLA section 101(35)(B), and until the effective date of today's regulation, persons who purchase property on or after May 31, 1997 could use either the procedures provided in ASTM E1527–2000, entitled ''Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process,'' or the earlier standard cited by Congress in the Brownfields Amendments, ASTM E1527–97.

Today's notice is a final rule and as such replaces the current interim standards for all appropriate inquiries established by Congress in the Brownfields Amendments and clarified by EPA in the May 9, 2003 final rule. Since the Agency is promulgating a final rule establishing federal regulations containing the standards and practices for conducting all appropriate inquiries, the interim standard will no longer be the operative standard for conducting all appropriate inquiries upon November 1, 2006, the effective date of today's rule. Until November 1, 2006, both the standards and practices included in today's final regulation and the current interim standards established by Congress for all appropriate inquiries will be recognized by EPA as satisfying the statutory requirements for the conduct of all appropriate inquiries under section 101(35)(B) of CERCLA.

D. What are the Liability Protections Established Under the Brownfields Amendments?

The Brownfields Amendments provide important liability protections for landowners who qualify as contiguous property owners, bona fide prospective purchasers, or innocent landowners. To meet the statutory requirements for any of these landowner liability protections, a landowner must meet certain threshold requirements and satisfy certain continuing obligations. To qualify as a bona fide prospective purchaser, contiguous property owner, or innocent landowner, a person must perform ''all appropriate inquiries'' on or before the date on which the person acquired the property. Bona fide prospective purchasers and contiguous property owners also must demonstrate that they are not potentially liable or affiliated with any other person that is potentially liable for response costs at the property. In the case of contiguous property owners, the landowner claiming to be a contiguous property owner also must demonstrate that he did not cause, contribute, or consent to any release or threatened release of hazardous substances. To meet the statutory requirements for a bona fide

prospective purchaser, a property owner must have acquired a property subsequent to any disposal activities involving hazardous substances at the property.

Continuing obligations required under the statute include complying with land use restrictions and not impeding the effectiveness or integrity of institutional controls; taking ''reasonable steps'' with respect to hazardous substances affecting a landowner's property to prevent releases; providing cooperation, assistance and access to EPA, a state, or other party conducting response actions or natural resource restoration at the property; complying with CERCLA information requests and administrative subpoenas; and providing legally required notices. For a more detailed discussion of these threshold and continuing requirements please see EPA, Interim Guidance Regarding Criteria Landowners Must Meet in Order to Qualify for Bona Fide Prospective Purchaser, Contiguous Property Owner, or Innocent Landowner Limitations on CERCLA Liability (Common Elements, 2003). A copy of this document is available in the docket for today's rule.

EPA notes that, as explained below, persons conducting all appropriate inquiries in compliance with today's final rule are not entitled to the CERCLA liability protections provided for innocent landowners, bona fide prospective purchasers, and contiguous property owners, unless they also comply with all of the continuing obligations established under the statute. As explained below, compliance with today's final rule is only one requirement necessary for CERCLA liability protection. We also note that the requirements of today's rule apply to prospective property owners who are seeking protection from liability under the federal Superfund Law (CERCLA). Prospective property owners wishing to establish protection from, or a defense to, liability under state superfund or other related laws must comply with the all criteria established under state laws, including any criteria for conducting site assessments or all appropriate inquiries established under applicable state statutes or regulations.

1. Bona Fide Prospective Purchaser

The Brownfields Amendments added a new bona fide prospective purchaser provision at CERCLA section 107(r). The provision provides protection from CERCLA liability, and limits EPA's recourse for unrecovered response costs to a lien on property for the lesser of the unrecovered response costs or increase in fair market value attributable to EPA's response action. To meet the statutory requirements for a bona fide prospective purchaser, a person must meet the requirements set forth in CERCLA sections 101(40) and 107(r). A bona fide prospective purchaser must have bought property after January 11, 2002 (the date of enactment of the Brownfields Amendments). A bona fide prospective purchaser may purchase property with knowledge of contamination after performing all appropriate inquiries, provided the property owner meets or complies with all of the other statutory requirements set forth in CERCLA section 101(40). Conducting all appropriate inquiries *alone* does not provide a landowner with protection against CERCLA liability. Landowners who want to qualify as bona fide prospective purchasers must comply with all of the statutory requirements. The statutory requirements include, without limitation, that the landowner must:

- Have acquired a property after all disposal of hazardous substances at the property ceased;
- Provide all legally required notices with respect to the discovery or release of any hazardous substances at the property;
- Exercise appropriate care by taking reasonable steps to stop continuing releases, prevent any threatened future release, and prevent or limit human, environmental, or natural resources exposure to any previously released hazardous substance;
- Provide full cooperation, assistance, and access to persons that are authorized to conduct response actions or natural resource restorations;
- Comply with land use restrictions established or relied on in connection with a response action;
- Not impede the effectiveness or integrity of any institutional controls;
- Comply with any CERCLA request for information or administrative subpoena; and
- Not be potentially liable, or affiliated with any other person who is potentially liable for response costs for addressing releases at the property.

Persons claiming to be bona fide prospective purchasers should keep in mind that failure to identify an environmental condition or identify a release or threatened release of a hazardous substance on, at, in or to a property during the conduct of all appropriate inquiries does not relieve a landowner from complying with the other post-acquisition statutory requirements for obtaining the liability protections. Landowners must comply with all the statutory requirements to obtain the liability protection. For example, an inability to identify a release or threatened release during the conduct of all appropriate inquiries does not negate the landowner's responsibilities under the statute to take reasonable steps to stop a release, prevent a threatened release, and prevent exposure to any previous release once any release is identified. Compliance with the other statutory requirements for the bona fide prospective purchaser liability protection is not contingent upon the findings of all appropriate inquiries.

2. Contiguous Property Owner

The Brownfields Amendments added a new contiguous property owner provision at CERCLA section 107(q). This provision excludes from the definition of ''owner'' or ''operator'' under CERCLA section 107(a)(1) and (2) a person who owns property that is ''contiguous to, or otherwise similarly situated with respect to, and that is or may be contaminated by a release or threatened release of a hazardous substance from'' property owned by someone else. To qualify as a contiguous property owner, a landowner must have no knowledge or reason to know of contamination at the time of acquisition, have conducted all appropriate inquiries, and meet all of the criteria set forth in CERCLA section 107(q)(1)(A), which include, without limitation:

- Not causing, contributing, or consenting to the release or threatened release;
- Not being potentially liable nor affiliated with any other person who is potentially liable for response costs at the property;
- Taking reasonable steps to stop continuing releases, prevent any threatened release, and prevent or limit human, environmental, or natural resource exposure to any hazardous substances released on or from the landowner's property;
- Providing full cooperation, assistance, and access to persons that are authorized to conduct response actions or natural resource restorations;
- Complying with land use restrictions established or relied on in connection with a response action;
- Not impeding the effectiveness or integrity of any institutional controls;
- Complying with any CERCLA request for information or administrative subpoena;
- Providing all legally required notices with respect to discovery or release of any hazardous substances at the property.

The contiguous property owner liability protection ''protects parties that

are essentially victims of pollution incidents caused by their neighbor's actions.'' S. Rep. No. 107–2, at 10 (2001). Contiguous property owners must perform all appropriate inquiries prior to purchasing property. However, performing all appropriate inquiries in accordance with the regulatory requirements alone is not sufficient to assert the liability protections afforded under CERCLA. Property owners must fully comply with all of the statutory requirements to be afforded the contiguous property owner liability protection. Persons who know, or have reason to know, that the property is or could be contaminated at the time of acquisition of a property cannot qualify for the liability protection as a contiguous property owner, but may be entitled to bona fide prospective purchaser status.

Persons claiming to be contiguous property owners should keep in mind that failure to identify an environmental condition or identify a release or threatened release of a hazardous substance on, at, in or to a property during the conduct of all appropriate inquiries, does not relieve a landowner from complying with the other statutory requirements for obtaining the contiguous landowner liability limitation. Landowners must comply with all the statutory requirements to qualify for the liability protections. For example, an inability to identify a release or threatened release during the conduct of all appropriate inquiries does not negate the landowner's responsibilities under the statute to take reasonable steps to stop the release, prevent a threatened release, and prevent exposure to previous releases once a release is identified. None of the other statutory requirements for the contiguous property owner liability protection is contingent upon the results of the conduct of all appropriate inquiries.

3. Innocent Landowner

The Brownfields Amendments also clarify the innocent landowner defense. To qualify as an innocent landowner, a person must conduct all appropriate inquiries and meet all of the statutory requirements. The requirements include, without limitation:

- Having no knowledge or reason to know that any hazardous substance which is the subject of a release or threatened release was disposed of on, in, or at the facility;
- Providing full cooperation, assistance and access to persons authorized to conduct response actions at the property;
- Complying with any land use restrictions and not impeding the effectiveness or integrity of any institutional controls;
- Taking reasonable steps to stop continuing releases, prevent any threatened release, and prevent or limit human, environmental, or natural resource exposure to any previously released hazardous substances;

To successfully assert an innocent landowner liability defense, a property owner must demonstrate compliance with CERCLA section 107(b)(3) as well. Such persons must establish, by a preponderance of the evidence:

- That the release or threat of release of hazardous substances and the resulting damages were caused by an act or omission of a third party with whom the person does not have employment, agency, or a contractual relationship;
- The person exercised due care with respect to the hazardous substance concerned, taking into consideration the characteristics of such hazardous substance, in light of all relevant facts and circumstances;
- Took precautions against foreseeable acts or omissions of any such third party and the consequences that could foreseeably result from such acts or omissions.

Like contiguous property owners, innocent landowners must perform all appropriate inquiries prior to or on the date of acquisition of a property and cannot know, or have reason to know, of contamination to qualify for this landowner liability protection. Persons claiming to be innocent landowners also should keep in mind that failure to identify an environmental condition or identify a release or threatened release of a hazardous substance on, at, in or to a property during the conduct of all appropriate inquiries, does not relieve or exempt a landowner from complying with the other statutory requirements for asserting the innocent landowner defense. Landowners must comply with all the statutory requirements to obtain the defense. For example, an inability to identify a release or threatened release during the conduct of all appropriate inquiries does not negate the landowner's responsibilities under the statute to take reasonable steps to stop the release, prevent a threatened release, and prevent exposure to a previous release. Compliance with the other statutory requirements for the innocent landowner defense is not contingent upon the results of an all appropriate inquiries investigation.

E. What Criteria Did Congress Establish for the All Appropriate Inquiries Standard?

Congress included in the Brownfields Amendments a list of criteria that the Agency must include in the regulations establishing standards and practices for conducting all appropriate inquiries. In addition to providing these criteria in the statute, Congress instructed EPA to develop regulations establishing standards and practices for conducting all appropriate inquiries in accordance with generally accepted good commercial and customary standards and practices. The criteria are set forth in CERCLA section 101(35)(2)(B)(iii) and include:

- The results of an inquiry by an environmental professional.
- Interviews with past and present owners, operators, and occupants of the facility for the purpose of gathering information regarding the potential for contamination at the facility.
- Reviews of historical sources, such as chain of title documents, aerial photographs, building department records, and land use records, to determine previous uses and occupancies of the real property since the property was first developed.
- Searches for recorded environmental cleanup liens against the facility that are filed under federal, state, or local law.
- Reviews of federal, state, and local government records, waste disposal records, underground storage tank records, and hazardous waste handling, generation, treatment, disposal, and spill records, concerning contamination at or near the facility.
- Visual inspections of the facility and of adjoining properties.
- Specialized knowledge or experience on the part of the defendant.
- The relationship of the purchase price to the value of the property, if the property was not contaminated.
- Commonly known or reasonably ascertainable information about the property.
- The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation.

III. Summary of Comments and Changes From Proposed Rule to Final Rule

EPA received over 400 public comments in response to the August 26, 2004 proposed rule. Comments were received from environmental consultants with experience in performing site assessments, trade

associations, state government agencies, environmental interest groups, and other public interest associations. Commenters generally supported the purpose and goals of the proposed rule. Many commenters complimented the Agency on its decision to develop the proposed rule using the negotiated rulemaking process. However, commenters had differing views on certain aspects of the proposed rule. In particular, the Agency received widely differing views on the proposed definition of ''environmental professional.'' Although many commenters supported the definition as proposed, other commenters raised concerns regarding the stringency of the proposed qualifications. A significant number of commenters applauded the proposed definition of an environmental professional and stated that it may increase the rigor and caliber of environmental site investigations. Commenters who would not qualify as an environmental professional under the proposed definition raised concerns with regard to the specific qualifications proposed.

EPA received a significant number of comments regarding the statutory requirements for qualifying for the CERCLA liability protections. Several commenters also raised concerns with regard to the performance-based approach to the all appropriate inquiries investigation included in the proposed rule. Commenters were concerned that the proposed performance-based approach would make it more difficult to qualify for the CERCLA liability protections than an approach that requires strict adherence to prescriptive data gathering requirements that do not allow for the application of professional judgment. However, the vast majority of commenters who commented on the performance-based nature of the proposed rule supported the proposed approach.

Other commenters raised concerns with regard to the proposed rule's requirements to identify and comment upon the significance of ''data gaps'' where the lack of information may affect the ability of an environmental professional to render an opinion regarding conditions at a property that are indicative of releases or threatened releases of hazardous substances. Commenters were concerned that if any data gaps exist potential contamination would not be identified, allowing property owners to escape liability for contamination. Other commenters supported the proposed requirement to identify data gaps, or missing information, that may affect the environmental professional's ability to render an opinion regarding the environmental conditions at a property and comment on their significance in this regard and stated that the requirement would lend credibility to the inquiry's final report.

We received many comments on the proposed provision to compare the purchase price of a property to the fair market value of the property (if the property were not contaminated). One concern raised is that commenters believe that the exact market value of a property is difficult to determine. Some commenters took exception to the fact that EPA did not propose that prospective landowners have to conduct formal real estate appraisals of the property to determine fair market value. Although this provision has been a statutory requirement for the conduct of all appropriate inquiries since 1986, some commenters thought the requirement should not be included within the scope of all appropriate inquiries. Other commenters stated that the environmental professional should not be required to undertake the comparison.

We received some comments on the results of the economic impact analysis that was conducted to assess the potential costs and impacts of the proposed rule. Many commenters generally agreed with the Agency's conclusion that the average incremental cost increase associated with the requirements in the proposed rule over the current industry standard would be minimal. However, some commenters asserted that EPA underestimated the incremental costs associated with the proposed rule. Although a few commenters mentioned particular activities included as requirements in the proposed rule that would increase the burdens and costs associated with conducting all appropriate inquiries, most of these commenters did not provide specific reasons for claimed cost increases over baseline activities. Some commenters simply stated that the proposed requirements would result in an increase in the price of phase I environmental site assessments. We provide a summary of the comments received on the economic impact analysis for the proposed rule, our responses to issues raised by commenters, and the results of some additional analyses conducted based on some of the issues raised, in an addendum to the economic impact analysis, which is provided in the docket for today's final rule.

In section IV of this preamble, we discuss the requirements of the final rule, including a summary of the provisions included in the August 26, 2004 proposed rule, the significant comments raised in response to the proposed provisions, and a summary of our rationale for the final rule requirements. Generally, the final rule closely resembles the provisions included in the proposed rule. We adopted relatively minor changes in response to public comments. For example, we received a number of comments urging EPA to modify the proposed definition of environmental professional to allow individuals who have significant experience in conducting environmental site assessments, but do not have a Baccalaureate degree, to qualify as environmental professionals. We were convinced by the arguments presented in many of these public comments. Therefore, the definition of an environmental professional included in today's final rule allows individuals with ten years of relevant full time experience to qualify as an environmental professional for the purpose of overseeing and performing all appropriate inquiries.

With respect to the proposed requirements governing the use of previously-conducted environmental site assessments for a particular property, we agreed with commenters who pointed out the proposed rule was unclear. In today's final rule, we modify the proposed rule language to allow for the use of information contained in previously-conducted assessments, even if the information was collected more than a year prior to the date on which the subject property is acquired. The final rule does require that all aspects of a site assessment, or all appropriate inquiries investigation, completed more than one year prior to the date of acquisition of the subject property be updated to reflect current conditions and current property-specific information. In the case of all appropriate inquiries investigations completed less than one year prior to the date of acquisition of the subject property but more than 180 days before the acquisition date, the final rule retains the requirements of the proposed rule that only certain aspects of the all appropriate inquiries must be updated.

In the case of the requirement to search for institutional controls that was included in the proposed requirements to review federal, state, tribal and local government records, we agreed with commenters who pointed out that searching for institutional controls associated with properties located within a half mile of the subject property is overly burdensome and without sufficient benefit to the purpose of the investigation. The final rule

requires that the search for institutional controls be confined to the subject property only.

We adopted one other change in the final rule, based upon public comments. In the proposed rule, we delineated responsibilities for particular aspects of the all appropriate inquiries investigation between the environmental professional and the prospective landowner of the subject property (or grantee). We defined the inquiry of the environmental professional to include: interviews with past and present owners, operators and occupants; reviews of historical sources of information; reviews of federal state tribal and local government records; visual inspections of the facility and adjoining property; commonly known or reasonably ascertainable information; and degree of obviousness of the presence or likely presence of contamination at the property and the ability to detect the contamination by appropriate investigation. We also defined ''additional inquiries'' that must be conducted by the prospective landowner or grantee (or an individual on the prospective landowner's or grantee's behalf). These ''additional inquiries'' include: specialized knowledge or experience of the prospective landowner (or grantee); the relationship of the purchase price to the fair market value of the property, if the property was not contaminated; and commonly known or reasonably ascertainable information. The requirement to search for environmental cleanup liens was proposed to be the responsibility of the prospective landowner (or grantee), if the search is not conducted by the environmental professional. The proposed rule required the prospective landowner (or grantee) to provide all information collected as part of the ''additional inquiries'' to the environmental professional.

The final rule retains the proposed delineation of responsibilities. However, based upon the input provided in public comments, the final rule does not require the prospective landowner (or grantee) to provide the information collected as part of the ''additional inquiries'' to the environmental professional. Although we continue to believe that the information collected or held by the prospective landowner (or grantee) should be provided to the environmental professional overseeing the other aspects of the all appropriate inquiries, we agree with commenters who asserted that prospective landowners and grantees should not be required to provide this information to the environmental professional. Commenters argued that property owners (and grantees) may want to hold some information (*e.g.*, the purchase price of the property) confidential. CERCLA liability rests with the owner or operator of a property and not with an environmental professional hired by the prospective landowner and who is not involved with the ownership or operation of the property. Since it ultimately is up to the owner or operator of a property to defend his or herself against any claims to liability, we agree with commenters that asserted that the regulations should not require that prospective landowners (or grantees) provide information collected to comply with the ''additional inquiries'' provisions to the environmental professional. Should the required information not be provided to the environmental professional, the environmental professional should assess the impact that the lack of such information may have on his or her ability to render an opinion with regard to conditions indicative of releases or threatened releases of hazardous substances on, at, in or to the property. If the lack of information does impact the ability of the environmental professional to render an opinion with regard to the environmental conditions of the property, the environmental professional should note the missing information as a data gap in the written report. We discuss each of the requirements of the final rule in Section IV of this preamble.

IV. Detailed Description of Today's Rule

A. What Is the Purpose and Scope of the Rule?

The purpose of today's rule is to establish federal standards and practices for the conduct of all appropriate inquiries. Such inquiries must be conducted by persons seeking any of the landowner liability protections under CERCLA prior to acquiring a property (as outlined in Section II.D. of this preamble). In addition, persons receiving federal brownfields grants under the authorities of CERCLA section 104(k)(2)(B) to conduct site characterizations and assessments must conduct such activities in compliance with the all appropriate inquiries regulations.

In the case of persons claiming one of the CERCLA landowner liability protections, the scope of today's rule includes the conduct of all appropriate inquiries for the purpose of identifying releases and threatened releases of hazardous substances on, at, in or to the property that would be the subject of a response action for which a liability protection would be needed and such a property is owned by the person asserting protection from liability. CERCLA liability is limited to releases and threatened releases of hazardous substances which cause the incurrence of response costs. Therefore, in the case of all appropriate inquiries conducted for the purpose of qualifying for protection from CERCLA liability (CERCLA section 107), the scope of the inquiries is to identify releases and threatened releases of hazardous substances which cause or threaten to cause the incurrence of response costs.

In the case of persons receiving Federal brownfields grants to conduct site characterizations and assessments, the scope of the all appropriate inquiries standards and practices may be broader. The Brownfields Amendments include a definition of a ''brownfield site'' that includes properties contaminated or potentially contaminated with substances not included in the definition of ''hazardous substance'' in CERCLA section 101(14). Brownfields sites include properties contaminated with (or potentially contaminated with) hazardous substances, petroleum and petroleum products, controlled substances, and pollutants and contaminants (as defined in CERCLA section 101(33)). Therefore, in the case of persons receiving federal brownfields grant monies to conduct site assessment and characterization activities at brownfields sites, the scope of the all appropriate inquiries may include these other substances, as outlined in § 312.1(c)(2), to ensure that persons receiving brownfields grants can appropriately and fully assess the properties as required. It is not the case that every recipient of a brownfields assessment grant has to include within the scope of the all appropriate inquiries petroleum and petroleum products, controlled substances and CERCLA pollutants and contaminants (as defined in CERCLA section 101(33)). However, in those cases where the terms and conditions of the grant or the cooperative agreement with the grantee designate a broader scope to the investigation (beyond CERCLA hazardous substances), then the scope of the all appropriate inquiries should include the additional substances or contaminants.

The scope of today's rule does not include property purchased by a non-governmental entity or non-commercial entity for ''residential use or other similar uses * * * [where] a facility inspection and title search * * * reveal no basis for further investigation.'' (Pub. L. 107–118 § 223). CERCLA section

101(35)(B)(v) states that in those cases, title search and facility inspection that reveal no basis for further investigation shall satisfy the requirements for all appropriate inquiries.

We note that today's rule does not affect the existing CERCLA liability protections for state and local governments that acquire ownership to properties involuntarily in their functions as sovereigns, pursuant to CERCLA sections 101(20)(D) and 101(35)(A)(ii). Involuntary acquisition of properties by state and local governments fall under those CERCLA provisions and EPA's policy guidance on those provisions, not under the all appropriate inquiry provisions of CERCLA section 101(35)(B).

B. To Whom Is the Rule Applicable?

Today's rule applies to any person who may seek the landowner liability protections of CERCLA as an innocent landowner, contiguous property owner, or bona fide prospective purchaser. The statutory requirements to obtain each of these landowner liability protections include the conduct of all appropriate inquiries. In addition, the rule applies to individuals receiving Federal grant monies under CERCLA section 104(k)(2)(B) to conduct site characterization and assessment activities. Persons receiving such grant monies must conduct the site characterization and assessment in compliance with the all appropriate inquiries regulatory requirements.

C. Does the Final Rule Include Any New Reporting or Disclosure Obligations?

The final rule does not include any new reporting or disclosure obligations. The rule only applies to those property owners who may seek the landowner liability protections provided under CERCLA for innocent landowners, contiguous property owners or bona fide prospective purchasers. The documentation requirements included in this rule are primarily intended to enhance the inquiries by requiring the environmental professional to record the results of the inquiries and his or her conclusions regarding conditions indicative of releases and threatened releases on, at, in, or to the property and to provide a record of the environmental professional's inquiry. Today's rule contains no new requirements to notify or submit information to EPA or any other government entity.

Although today's rule does not include any new disclosure requirements, CERCLA section 103 does require persons in charge of vessels and facilities, including on-shore and off-shore facilities, to notify the National Response Center of any release of a hazardous substance from the vessel or facility in a quantity equal to or greater than a ''reportable quantity,'' as defined in CERCLA section 102(b). Today's rule includes no changes to this reporting requirement nor any changes to any other reporting or disclosure requirements under federal, tribal, or state law.

D. What Are the Final Documentation Requirements?

The proposed rule required that the environmental professional, on behalf of the property owner, document the results of the all appropriate inquiries in a written report. As explained in the preamble to the proposed rule, the property owner could use this report to document the results of the inquiries. Such a report can be similar in nature to the type of report previously provided under generally accepted commercial practices. We proposed no requirements regarding the length, structure, or specific format of the written report. In addition, the proposed rule did not require that a written report of any kind be submitted to EPA or any other government agency, or that a written report be maintained on-site at the subject property for any length of time.

Today's final rule retains the requirements, as proposed, for documenting the results of the all appropriate inquiries investigation conducted under the supervision or responsible charge of an environmental professional. As noted above, the primary purpose of the documentation requirement is to enhance the inquiry of the environmental professional by requiring that the environmental professional record the results of the inquiries and his or her conclusions. The written report may allow any person claiming one of the CERCLA landowner liability protections to offer documentation in support of his or her claim that all appropriate inquiries were conducted in compliance with the federal regulations.[1] The Agency notes that while today's final regulation does not require parties conducting all appropriate inquiries to retain the written report or any other documentation discovered, consulted, or created in the course of conducting the inquiries, the retention of such documentation and records may be helpful should the property owner need to assert protection from CERCLA liability after purchasing a property.

The final rule requires that a written report documenting the results of the all appropriate inquiries include an opinion of an environmental professional as to whether the all appropriate inquiries conducted identified conditions indicative of releases or threatened releases of hazardous substances on, at, in or to the subject property. The rule also requires that the report identify data gaps in the information collected that affect the ability of the environmental professional to render such an opinion and that the environmental professional comment on the significance of the data gaps.

Several commenters raised issues with regard to the proposed requirement that the environmental professional document and comment on the significance of data gaps that affect the ability of the environmental professional to identify conditions indicative of releases or threatened releases of hazardous substances on at, in, or to the subject property. Some commenters stated that the need to identify data gaps will make it difficult to determine when an all appropriate inquiries investigation is complete and therefore the requirement would act as a disincentive to the development of potentially contaminated properties. Other commenters asserted that the fact that the regulations recognize data gaps creates a loophole that would result in property owners claiming to be protected from CERCLA liability after conducting an incomplete investigation that includes significant data gaps. These commenters raised concerns that CERCLA liability protection could be claimed by property owners simply because they conducted an all appropriate inquiries investigation, even in those cases where releases on, at, in, or to the property were missed during the investigation. Other commenters stated their support for the requirements to document data gaps, as proposed. A summary of EPA's response to these comments and the requirements for documenting data gaps included in the final rule is provided below in Section IV.N.

The final rule, at § 312.21(d), retains the proposed requirement that the environmental professional who conducts or oversees the all appropriate inquiries sign the written report. There are two purposes for the requirement to include a signature in the report. First, the individual signing the report must declare, on the signature page, that he or she meets the definition of an

[1] Nothing in this regulation or preamble is intended to suggest that any particular documentation prepared in conducting all appropriate inquiries will be admissible in court in any litigation where a party raises one of the liability protections, or will in any way alter the judicial rules of evidence.

environmental professional, as provided in § 312.10. In addition, the rule requires that the environmental professional declare that: [I, We] have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR part 312.

Some commenters raised concerns about whether the proposed rule would require the environmental professional to certify the all appropriate inquiries report and its findings. Today's final rule does not require the environmental professional to ''certify'' the results of the all appropriate inquiries when signing the report. The two statements or declarations mentioned above and required to be included in the final written report documenting the conduct of all appropriate inquiries are meant to document that an individual meeting the qualifications of an environmental professional was involved in the conduct of the all appropriate inquiries and that the activities performed by, or under the supervision or responsible charge of, the environmental professional were performed in conformance with the regulations. Reports signed by individuals holding a Professional Engineer (P.E.) or Professional Geologist (P.G.) license, need not include the individual's professional seal.

A few commenters requested that EPA include specific requirements for the content of a final report in the final rule. Given that the type and extent of information available on a particular property may vary greatly with its size, type, past uses, and location, and the type and extent of information necessary for an environmental professional to render an opinion regarding conditions indicative of releases or threatened releases of hazardous substances associated with any property may vary, we decided not to include in the final rule specific requirements governing the content of all reports.

The provisions of the final rule allow for the property owner (or grantee) and any environmental professional engaged in the conduct of all appropriate inquiries for a specific property to design and develop the format and content of a written report that will meet the prospective landowner's (or grantee's) objectives and information needs in addition to providing documentation that all appropriate inquiries were completed prior to the acquisition of the property, should the landowner (or grantee) need to assert protection from liability after purchasing a property.

E. What Are the Qualifications for an Environmental Professional?

Proposed Rule

In the Brownfields Amendments, Congress required that all appropriate inquiries include ''the results of an inquiry by an environmental professional'' (CERCLA section 101(35)(B)(iii)(I)). The proposed rule included minimal qualifications for persons managing or overseeing all appropriate inquiries. The intent of setting minimum professional qualifications, is to ensure that all inquiries are conducted at a high level of professional ability and ensure the overall quality of both the inquiries conducted and the conclusions or opinions rendered with regard to conditions indicative of the presence of a release or threatened release on, at, in, or to a property, based upon the results of all inquiries. The proposed rule required that an environmental professional conducting or overseeing all appropriate inquiries possess sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding the presence of releases or threatened releases of hazardous substances to the surface or subsurface of a property. In addition, the proposed rule included minimum qualifications, including minimum levels of education and experience, that characterize the type of professional who is best qualified to oversee and direct the development of comprehensive inquiries and provide the landowner with sound conclusions and opinions regarding the potential for releases or threatened releases to be present at the property. The proposed rule allowed for individuals not meeting the proposed definition of an environmental professional to contribute to and participate in the all appropriate inquiries on the condition that such individuals are conducting inquiries activities under the supervision or responsible charge of an individual that meets the regulatory definition of an environmental professional.

The proposed rule required that the final review of the all appropriate inquiries and the conclusions that follow from the inquiries rest with an individual who qualifies as an environmental professional, as defined in proposed section § 312.10 of the proposed rule. The proposed rule also required that in signing the report, the environmental professional must document that he or she meets the definition of an ''environmental professional'' included in the regulations.

The proposed definition first and foremost required that, to qualify as an environmental professional, a person must ''possess sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding the presence of releases or threatened releases * * * to the surface or subsurface of a property, sufficient to meet the objectives and performance factors'' that are provided in the proposed regulation. The proposed definition of an environmental professional included individuals who possess the following combinations of education and experience.

- Hold a current Professional Engineer's (P.E.) or Professional Geologist's (P.G.) license or registration from a state, tribe, or U.S. territory and have the equivalent of three (3) years of full-time relevant experience; or
- Be licensed or certified by the federal government, a state, tribe, or U.S. territory to perform environmental inquiries as defined in § 312.21 and have the equivalent of three (3) years of full-time relevant experience; or
- Have a Baccalaureate or higher degree from an accredited institution of higher education in a relevant discipline of engineering, environmental science, or earth science and the equivalent of five (5) years of full-time relevant experience; or
- As of the date of the promulgation of the final rule, have a Baccalaureate or higher degree from an accredited institution of higher education and the equivalent of ten (10) years of full-time relevant experience.

Public Comments

We received a significant number of public comments on the proposed definition of environmental professional. Many commenters supported the definition of environmental professional as proposed. However, a significant number of commenters raised concerns with regard to the proposed educational requirements. Commenters pointed out that the proposed minimum qualifications for an environmental professional did not allow for individuals with many years of relevant experience in conducting environmental site assessments to qualify as environmental professionals, if such individuals do not have college degrees. The proposed rule only allowed for persons with a Baccalaureate degree or higher in specific disciplines of science and engineering, and a specific number of years of experience, to qualify as an

environmental professional, unless an individual was otherwise licensed as an environmental professional by a state, tribe or the federal government. Some commenters questioned the Agency's reasoning for restricting the degree requirements to only certain types of science or engineering. Commenters requested that EPA provide more specific definitions of the types of science and engineering degrees that would be necessary to qualify as an environmental professional.

Commenters also asserted that the proposed ''grandfather clause'' allowing for individuals having a Baccalaureate degree (or higher) and who accumulated ten years of full time relevant experience on or before the promulgation date of the final rule to qualify as an environmental professional was too stringent and provided too small of a window of opportunity for individuals not otherwise meeting the proposed definition of environmental professional to qualify.

Some commenters stated that the definition of environmental professional should not be restricted to those individuals licensed as P.E.s or P.G.s. A few commenters stated that a licensed professional is no more qualified to perform all appropriate inquiries investigations than other individuals with a significant number of years of experience in conducting such activities. Other commenters asserted that only licensed P.E.s and P.G.s are qualified to supervise all appropriate inquiries activities.

EPA also received comments from independent professional certification organizations and members of these organizations, including the Academy of Certified Hazardous Materials Managers, requesting that their organizations' certification programs be named in the regulatory definition of an environmental professional.

Final Rule

After careful consideration of the issues raised by commenters regarding the proposed definition of environmental professional, we made a few modifications to the proposed definition to reduce the potential burden that the proposed definition may have placed upon individuals who have significant experience in conducting environmental site assessments but do not meet the proposed educational, or college degree, requirements. We agree with those commenters who asserted that individuals with a significant number of years of experience in performing environmental site assessments, or all appropriate inquiries investigations, should qualify as environmental professionals for the purpose of conducting all appropriate inquiries, even in cases where such individuals do not have a college degree. Therefore, in the final rule, persons with ten or more years of full-time relevant experience in conducting environmental site assessments and related activities may qualify as environmental professionals, without having received a college degree.

In addition, we agreed with commenters who pointed out that the requirement that environmental professionals hold specific types of science or engineering degrees was too limiting. In the final rule, persons with any science or engineering degree (regardless of specific discipline in science or engineering) can qualify as an environmental professional, if they also meet the other required qualifications, including the requirement to have five (5) years of full-time relevant experience.

We also agree with commenters who asserted that the proposed grandfather clause was too restrictive. As mentioned above, we agree with commenters who pointed out that individuals with a significant number of years of experience in conducting environmental site assessments or all appropriate inquiries investigations should be able to qualify as environmental professionals, for the purpose of carrying out the provisions of today's rulemaking. In addition, we agree with commenters who stated that the ability for experienced professionals to qualify as an environmental professional should not be limited to those who meet the threshold qualifications on the effective date of the final rule. Therefore, the proposed grandfather clause is not included within the definition of environmental professional in the final rule. As explained above, in today's final rule, individuals with ten or more years of full-time relevant experience in conducting environmental site assessments and related investigations will qualify as environmental professionals for the purposes of this rulemaking.

The final rule retains the provision recognizing as environmental professionals those individuals who are licensed by any tribal or state government as a P.E. or P.G., and have three years of full-time relevant experience in conducting all appropriate inquiries. We continue to contend that such individuals have sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of releases or threatened releases on, at, in, or to a property, including the presence of releases to the surface or subsurface of the property, sufficient to meet the objectives and performance factors provided in the regulation. The rigor of the tribal- and state-licensed P.E. and P.G. certification processes, including the educational and training requirements, as well as the examination requirements, paired with the requirement to have three years of relevant professional experience conducting all appropriate inquiries will ensure that all appropriate inquiries are conducted under the supervision or responsible charge of an individual well qualified to oversee the collection and interpretation of site-specific information and render informed opinions and conclusions regarding the environmental conditions at a property, including opinions and conclusions regarding conditions indicative of releases or threatened releases of hazardous substances and other contaminants on, at, in, or to the property. The Agency's decision to recognize tribal and state-licensed P.E.s and P.G.s reflects the fact that tribal governments and state legislatures hold such professionals responsible (legally and ethically) for safeguarding public safety, public health, and the environment. To become a P.E. or P.G. requires that an applicant have a combination of accredited college education followed by approved professional training and experience. Once a publicly-appointed review board approves a candidate's credentials, the candidate is permitted to take a rigorous exam. The candidate must pass the examination to earn a license, and perform ethically to maintain it. After a state or tribe grants a license to an individual, and as a condition of maintaining the license, many states require P.E.s and P.G.s to maintain proficiency by participating in approved continuing education and professional development programs. In addition, tribal and state licensing boards can investigate complaints of negligence or incompetence on the part of licensed professionals, and may impose fines and other disciplinary actions such as cease and desist orders or license revocation.

Although the final rule recognizes tribal and state-licensed P.E. and P.G.s and other such government licensed environmental professionals with three years of experience to be environmental professionals, the rule does not restrict the definition of an environmental professional to these licensed individuals. The definition of an

environmental professional also includes individuals who hold a Baccalaureate or higher degree from an accredited institution of higher education in engineering or science and have the equivalent of five (5) years of full-time relevant experience in conducting environmental site assessments, or all appropriate inquiries. In addition, individuals with ten years of full-time relevant experience in conducting environmental site assessments, or all appropriate inquiries qualify as environmental professionals for the purpose of conducting all appropriate inquiries. Individuals with these qualifications most likely will possess sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of releases or threatened releases on, at, in, or to a property, sufficient to meet the objectives and performance factors included in § 312.20(e) and (f).

In addition to the qualifications for environmental professionals mentioned above, EPA is retaining the proposed provision to include within the definition of an environmental professional individuals who are licensed to perform environmental site assessments or all appropriate inquiries by the Federal government (e.g., the Bureau of Indian Affairs) or under a state or tribal certification program, provided that these individuals also have three years of full-time relevant experience. We contend that individuals licensed by state and tribal governments, or by any department or agency within the federal government, to perform all appropriate inquiries or environmental site assessments, should be allowed to qualify as an environmental professional under today's regulation. State and tribal agencies may best determine the qualifications defining individuals who ''possess sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of releases or threatened releases on, at, in, or to a property, sufficient to meet the rule's objectives and performance factors'' within any particular state or tribal jurisdiction.

In response to requests from members of independent certification organizations that EPA recognize in the regulation those organizations whose certification requirements meet the environmental professional qualifications included in the final rule, we point out that today's final rule does not reference any private party professional certification standards. Such an approach would require that EPA review the certification requirements of each organization to determine whether or not each organization's certification requirements meet or exceed the regulatory qualifications for an environmental professional. Given that there may be many such organizations and given that each organization may review and change its certification qualifications on a frequent or periodic basis, we conclude that such a undertaking is not practicable. EPA does not have the necessary resources to review the procedures of each private certification organization and review and approve each organization's certification qualifications. Therefore, the final rule includes within the regulatory definition of an environmental professional, general performance-based standards or qualifications for determining who may meet the definition of an environmental professional for the purposes of conducting all appropriate inquiries. These standards include education and experience qualifications, as summarized below. The final rule does not recognize, or reference, any private organization's certification program within the context of the regulatory language. However, the Agency notes that any individual with a certification from a private certification organization where the organization's certification qualifications include the same or more stringent education and experience requirements as those included in today's final regulation will meet the definition of an environmental professional for the purposes of this regulation.

Based upon the input received from the public commenters, EPA determined that the definition of environmental professional included in today's final rule establishes a balance between the merits of setting a high standard of excellence for the conduct of all appropriate inquiries through the establishment of stringent qualifications for environmental professionals and the need to ensure that experienced and highly competent individuals currently conducting all appropriate inquiries are not displaced.

Summary of Final Rule's Definition of Environmental Professional

In summary, the definition of environmental professional included in today's final rule includes individuals who possess the following qualifications:

- Hold a current Professional Engineer's or Professional Geologist's license or registration from a state, tribe, or U.S. territory and have the equivalent of three (3) years of full-time relevant experience; or
- Be licensed or certified by the federal government, a state, tribe, or U.S. territory to perform environmental inquiries as defined in § 312.21 and have the equivalent of three (3) years of full-time relevant experience; or
- Have a Baccalaureate or higher degree from an accredited institution of higher education in science or engineering and the equivalent of five (5) years of full-time relevant experience; or
- Have the equivalent of ten (10) years of full-time relevant experience.

The definition of ''relevant experience'' is ''participation in the performance of environmental site assessments that may include environmental analyses, investigations, and remediation which involve the understanding of surface and subsurface environmental conditions and the processes used to evaluate these conditions and for which professional judgment was used to develop opinions regarding conditions indicative of releases or threatened releases * * * to the subject property.''

The final rule retains the proposed requirement that environmental professionals remain current in their field by participating in continuing education or other activities and be able to demonstrate such efforts.

The final rule also retains the allowance for individuals not meeting the definition of an environmental professional to contribute to and participate in the all appropriate inquiries on the condition that such individuals are conducting inquiries activities under the supervision or responsible charge of an individual that meets the regulatory definition of an environmental professional. This provision allows for a team of individuals working for the same firm or organization (e.g., individuals working for the same government agency) to share the workload for conducting all appropriate inquiries for a single property, provided that one member of the team meets the definition of an environmental professional and reviews the results and conclusions of the inquiries and signs the final report.

The final rule requires that the final review of the all appropriate inquiries and the conclusions that follow from the inquiries rest with an individual who qualifies as an environmental professional, as defined in § 312.10. The final rule also requires that in signing

the report, the environmental professional must document that he or she meets the definition of an ''environmental professional'' included in the regulations.

F. References

Proposed Rule

In the proposed rule, the Agency reserved a reference section and stated in the preamble that we may include references to applicable voluntary consensus standards developed by standards' developing organizations that are not inconsistent with the final regulatory requirements for all appropriate inquiries or otherwise impractical. The Agency requested comments regarding available commercially accepted voluntary consensus standards that may be applicable to and compliant with the proposed federal standards for all appropriate inquiries.

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (''NTTAA''), Public Law 104–113, section 12(d) (15 U.S.C. 272 note), directs agencies to use technical standards that are developed or adopted by voluntary consensus standards bodies, unless their use would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.*, materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. When developing the proposed rule, EPA considered using an existing voluntary consensus standard developed by ASTM International as the federal standard for all appropriate inquiries. This standard is known as the ASTM E1527–2000 standard (entitled ''Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process''). In the preamble to the proposed rule, we acknowledged the prevalent use of the ASTM E1527–2000 standard and the fact that it generally is recognized as good and customary commercial practice. However, when we proposed the federal standards for all appropriate inquiries, EPA determined that the ASTM E1527–2000 standard is inconsistent with applicable law. As a result, EPA chose not to reference the ASTM E1527–2000 standard because it was inconsistent with applicable law.

Public Comments

We received relatively few comments citing available and applicable voluntary consensus standards for conducting all appropriate inquiries. Several commenters did argue that the interim standard cited in the statute, the ASTM E1527–97 Environmental Site Assessments: Phase I Environmental Site Assessment Process, or the updated ASTM E1527–2000, is sufficient to meet the statutory criteria. A few commenters stated a preference for the ASTM E1527–2000 standard over the requirements included in the proposed rule. ASTM International is a standards development organization whose committees develop voluntary consensus standards for a variety of materials, products, systems and services. ASTM International is the only standards development organization that submitted a comment requesting that the Agency consider its standard, the ASTM E1527–2000 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, as an equivalent standard to the federal regulations.

Final Rule

Since publication of the proposed rule, ASTM International and its E50 committee, the committee responsible for the development of the ASTM E1527–2000 Phase I Environmental Site Assessment Process, has reviewed and updated the ''2000'' version of the E1527 standard to address EPA's concerns regarding the differences between the ASTM E1527–2000 standard and the criteria established by Congress in the Brownfields Amendments to CERCLA. These activities were conducted within the normal review and updating process that ASTM International undertakes for each standard over a five-year cycle.

In today's final rule, EPA is referencing the standards and practices developed by ASTM International and known as Standard E1527–05 (entitled ''Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process'') and recognizing the E1527–05 standard as consistent with today's final rule. The Agency determined that this voluntary consensus standard is consistent with today's final rule and is compliant with the statutory criteria for all appropriate inquiries. Persons conducting all appropriate inquiries may use the procedures included in the ASTM E1527–05 standard to comply with today's final rule.

It is the Agency's intent to allow for the use of applicable and compliant voluntary consensus standards when possible to facilitate implementation of the final regulations and avoid disruption to parties using voluntary consensus standards that are found to be fully compliant with the federal regulations.

G. What Is Included in ''All Appropriate Inquiries?''

Proposed Rule

The proposed regulations for conducting all appropriate inquiries outlined the standards and practices for conducting the activities included in each of the statutory criterion established by Congress in the Brownfields Amendments. These criteria are set forth in CERCLA section 101(35)(B)(iii) and are:

- The results of an inquiry by an environmental professional (proposed § 312.21).
- Interviews with past and present owners, operators, and occupants of the facility for the purpose of gathering information regarding the potential for contamination at the facility (proposed § 312.23).
- Reviews of historical sources, such as chain of title documents, aerial photographs, building department records, and land use records, to determine previous uses and occupancies of the real property since the property was first developed (proposed § 312.24).
- Searches for recorded environmental cleanup liens against the facility that are filed under Federal, State, or local law (proposed § 312.25).
- Reviews of Federal, State, and local government records, waste disposal records, underground storage tank records, and hazardous waste handling, generation, treatment, disposal, and spill records, concerning contamination at or near the facility (proposed § 312.26).
- Visual inspections of the facility and of adjoining properties (proposed § 312.27).
- Specialized knowledge or experience on the part of the defendant (proposed § 312.28).
- The relationship of the purchase price to the value of the property, if the property was not contaminated (proposed § 312.29).
- Commonly known or reasonably ascertainable information about the property (proposed § 312.30).
- The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation (proposed § 312.31).

Public Comments

We received a few comments addressing the statutory criteria and the

inclusion of certain particular criteria within the scope of the proposed rule. Some commenters requested that EPA not include in the final rule the criterion to consider the relationship of the purchase price of the property to the fair market value of the property, if the property is not contaminated. In addition, a few commenters stated the final rule should not include within the scope of the all appropriate inquiries the specialized knowledge or experience on the part of the prospective landowner.

The Agency notes that both criteria that commenters requested be removed from the scope of the all appropriate inquiries regulations are criteria specifically required by Congress to be included in the regulations. In addition, both criteria have been part of the all appropriate inquiries provisions under the CERCLA innocent landowner defense since 1986. The proposed rule included no changes from the previous statutory provisions.

Final Rule

The final rule retains provisions addressing each of the statutory criteria for the conduct of all appropriate inquiries included in CERCLA section 101(35)(B)(iii).

H. Who Is Responsible for Conducting the All Appropriate Inquiries?

The Brownfields Amendments to CERCLA require persons claiming any of the landowner liability protections to conduct all appropriate inquiries into the past uses and ownership of the subject property. The criteria included in the Brownfields Amendments for the regulatory standards for all appropriate inquiries require that the inquiries include an inquiry by an environmental professional. The statute does not require that all criteria or inquiries be conducted by an environmental professional.

Proposed Rule

The proposed rule required that many, but not all, of the inquiries activities be conducted by, or under the supervision or responsible charge of, an individual meeting the qualifications of the proposed definition of an environmental professional. The proposed rule also provided that several of the activities included in the inquiries could be conducted either by the prospective landowner or grantee, and not have to be conducted under the supervision or responsible charge of the environmental professional. The proposed rule required that the results of all activities conducted by the prospective landowner or grantee, and not conducted by or under the supervision or responsible charge of the environmental professional, be provided to the environmental professional to ensure that such information could be fully considered when the environmental professional develops an opinion, based on the inquiry activities, as to whether conditions at the property are indicative of a release or threatened release of a hazardous substance (or other contaminant) on, at, in, or to the property.

The proposed rule allowed for the following activities to be the responsibility of, or conducted by, the prospective landowner or grantee and not necessarily be conducted by the environmental professional, provided the results of such inquiries or activities are provided to an environmental professional overseeing the all appropriate inquiries:

- Searches for environmental cleanup liens against the subject property that are filed or recorded under federal, tribal, state, or local law, as required by proposed § 312.25.
- Assessments of any specialized knowledge or experience on the part of the landowner, as required by § 312.28.
- An assessment of the relationship of the purchase price to the fair market value of the subject property, if the property was not contaminated, as required by § 312.29.
- An assessment of commonly known or reasonably ascertainable information about the subject property, as required by § 312.30.

The proposed rule required that all other required inquiries and activities, beyond those listed above to be conducted by, or under the supervision or responsible charge of, an environmental professional.

Public Comments

Several commenters asserted that the mandatory nature of the proposed provision requiring the prospective landowner to provide information regarding the four criteria listed above to the environmental professional is problematic. Particularly with regard to the requirement to provide ''specialized knowledge or experience of the defendant,'' commenters pointed out difficulties in a prospective landowner being able to document such knowledge and experience sufficiently. Also, with regard to the information related to the ''relationship of the purchase price to the fair market value of the property, if the property was not contaminated,'' many commenters pointed out that prospective landowners may not want to divulge information regarding the price paid for a property. Commenters pointed out that the requirement to consider ''commonly known or reasonably ascertainable information'' about a property is implicit to all aspects of the all appropriate inquiries requirements. In addition, commenters stated that CERCLA liability lies solely with the owners and operators of a vessel or property. A decision on the part of a prospective landowner to not furnish an environmental professional with certain information related to any of the statutory criteria can only affect the property owner's ability to claim a liability protection provided under the statute. In addition, the statute does not mandate that information deemed to be the responsibility of the prospective landowner and not part of the ''inquiry of the environment professional'' be provided to the environmental professional or even be part of the inquiry of the environmental professional. Some of the statutory criteria are inherently the responsibility of the prospective landowner.

Final Rule

We agree with the commenters who asserted that the results and information related to the criteria identified as being the responsibility of the prospective landowner should not, as a matter of law, have to be provided to the environmental professional. The statute does not mandate that a prospective landowner provide all information to an environmental professional. Given that the burden of potential CERCLA liability ultimately falls upon the property owner or operator, a prospective landowner's decision not to provide the results of an inquiry or related information to an environmental professional he or she hired to undertake other aspects of the all appropriate inquiries investigation can only affect the liability of the property owner. In addition, we believe that the environmental professional may be able to develop an opinion with regard to conditions indicative of releases or threatened releases on, at, in, or to a property based upon the results of the criteria identified to be part of the ''inquiry of an environmental professional.'' Any information not furnished to the environmental professional by the prospective landowner that may affect the environmental professional's ability to render such an opinion may be identified by the environmental professional as a ''data gap.'' The provisions of the final rule (as did the proposed rule) then require that the environmental professional comment on the significance of the data gap or missing information on his or her ability to render such an opinion, in light of all

other information collected and all other data sources consulted.

As a result of our consideration of the issues raised by commenters, today's final rule modifies the requirements of § 312.22 ''additional inquiries'' by stating (in paragraph (a)) that ''persons * * * may provide the information associated with such inquiries [i.e., the information for which the prospective landowner or brownfields grantee is responsible] to the environmental professional * * *.'' The proposed rule provided that such information ''must be provided'' to the environmental professional. Although we expect that most prospective landowners and grantees will furnish available information or knowledge about a property to an environmental professional he or she hired when such information could assist the environmental professional in ascertaining the environmental conditions at a property, we affirm that compliance with the statutory criteria does not require that such information be disclosed. Ultimately, CERCLA liability rests with the owner or operator of a facility or property owner and it is the information held by the property owner or operator that may be reviewed in a court of law when determining an owner or operator's liability status, regardless of whether all information was disclosed to an environmental professional during the conduct of all appropriate inquiries.

I. When Must All Appropriate Inquiries Be Conducted?

CERCLA section 101(40)(B)(i), as amended, requires bona fide prospective purchasers to conduct all appropriate inquiries into ''previous ownerships and uses of the facility.'' In the case of contiguous property owners, CERCLA section 107(q)(1)(A)(viii) requires that a person claiming to be a contiguous property owner conduct all appropriate inquiries ''at the time at which the person acquired the property.'' In the case of innocent landowners, section 101(35)(B)(i)(I) of CERCLA requires that the property owner conduct all appropriate inquiries ''on or before the date on which the defendant acquired the facility.''

Proposed Rule

Other than to specify that all appropriate inquiries must be conducted on or prior to the date a person acquires a property, the statute is silent regarding how close to the actual date of acquisition the inquiries must be completed. The proposed rule required that all appropriate inquiries be conducted or updated within one year prior to taking title to a property. The proposed rule provided that prospective landowners could use information collected as part of previous inquiries for the same property, if the inquiries were completed or updated within one year prior to the date the property is acquired. The proposed rule required that certain information collected as part of a previous all appropriate inquiries be updated if it was collected more than 180 days prior to the date a person purchased the property. In addition, in the preamble to the proposed rule, Agency defined the date of acquisition of a property as the date on which the prospective landowner acquires title to the property.

Public Comments

Commenters generally agreed with the proposed provision to define the date of acquisition of a property as the date on which a person acquires title to the property. A few commenters stated that the requirement for an all appropriate inquiries investigation to be completed within a year of the date of acquisition of the property is too stringent and may not allow sufficient time for some property transactions to be completed. Some commenters also asserted that the proposed requirement to update certain aspects of the all appropriate inquiries investigation, if the investigation was conducted more than 180 days prior to the date of the acquisition of the property was too stringent.

Final Rule

The Agency continues to believe that the event that most closely reflects the Congressional intent of the date on which the defendant acquired the property is the date on which a person received title to the property. As explained in the preamble to the proposed rule, the Agency considered other dates, such as the date a prospective landowner signs a purchase or sale agreement. However, it could be burdensome to require a prospective landowner to have completed the all appropriate inquiries prior to having an agreement with a seller to complete a sales transaction. In fact, the time period between the date on which a sales agreement is signed and the date on which the title to the property is actually transferred to the prospective landowner may be the most convenient time for the prospective landowner to obtain access to the property and undertake the all appropriate inquiries. In addition, requiring that all appropriate inquiries be completed on some date prior to the date of title transfer could result in requiring prospective landowners to undertake all appropriate inquiries so early in the property acquisition process as to require the inquiries to be completed prior to the prospective landowner making a final decision on whether to actually acquire the property.

To increase the potential that the information collected for the all appropriate inquiries accurately reflects the proposed objectives and performance factors, as well as to increase the potential that opinions and judgments regarding the environmental conditions at a property that are included in an all appropriate inquiries report are based on current and relevant information, the Agency is retaining the proposed provision that all appropriate inquiries be conducted within one year prior to the prospective landowner acquiring the property. Today's final rule includes regulatory language at § 312.20(a) clarifying that all appropriate inquiries must be conducted within one year prior to the date on which a person acquires a property.

All appropriate inquiries may include information collected for previous inquiries that were conducted or updated within one year prior to the acquisition date of the property. In addition, as explained in more detail below, the final rule retains the requirement that several of the components of the inquiries be updated within 180 days prior to the date the property is purchased. Today's final rule includes a definition of the ''date of acquisition,'' or purchase date, of a property (i.e., the date the landowner obtains title to the property).

Although commenters may be correct in their assertions that some property transactions may take more than a year to close, we continue to believe that it is important for the all appropriate inquiries investigation to be completed within one year prior to the date the property is acquired. We point out that the final regulation, as did the proposed regulation, allows for information from an older investigation to be used in a current investigation. However, if the prior all appropriate inquiries investigation was completed more than a year prior to the property acquisition date, all parts of the investigation must be reviewed and updated for the all appropriate inquiries to be complete. We believe that a year is sufficient time for conditions at a property to change. In particular, in cases where there is a release or threatened release at a property, significant changes to the environmental conditions of a property could occur during the course of a year. In addition, depending upon the uses and ownership of a property during the

course of a one-year time period, overall conditions at a property could change and new evidence of a release or threatened release could appear. Therefore, today's final rule requires that all appropriate inquiries completed for a particular property more than one year prior to the date of acquisition of that property, be updated in their entirety. As summarized below, the final rule does allow for the use of information contained in previous inquiries, even when the inquiries were completed more than a year prior to the property acquisition date, as long as all information was updated within a year and includes any changes that may have occurred during the interim.

J. Can a Prospective Landowner Use Information Collected for Previous Inquiries Completed for the Same Property?

Proposed Rule

The proposed rule allowed parties conducting all appropriate inquiries to use the results of and information from previous inquiries completed for the same property, under certain conditions. First, the previous inquiries must have been conducted in compliance with the proposed rule and with CERCLA sections 101(35)(B), 101(40)(B) and 107(q)(A)(viii). In addition, the information in the previous inquiries must have been collected or updated within one year prior to the date of acquisition of the property. Certain types of information collected more than 180 days prior to the current date of acquisition must be updated for the current all appropriate inquiries. Also, the information required under some specific criterion (e.g., relationship of purchase price to property value, specialized knowledge on part of defendant) must be collected specifically for the current transaction.

Public Comments

A significant number of commenters pointed out that the regulatory language in proposed § 312.20(b)(1) of the proposed rule precludes the use of information contained in assessments or the results of all appropriate inquiries conducted more than a year prior to the date of acquisition of a property. Commenters pointed out that since the language in the proposed rule stated that previously collected information had to have been collected ''in compliance with the requirements of * * * 40 CFR Part 312,'' any information included in all appropriate inquiries reports completed prior to the promulgation of the final rule could not be used, since compliance with the regulation could not be achieved prior to its publication.

Final Rule

It is not the Agency's intent to disallow the use of information contained in previous inquiries, if the environmental professional and the prospective landowner find the previously collected information to be accurate and valid. However, EPA continues to believe that information collected as part of a prior all appropriate inquiries investigation for the same property should be updated to reflect current environmental conditions at the property and to include any specific information or specialized knowledge held by the prospective landowner. The regulatory language in today's final rule (at § 312.20(c)(1)) allows for the use of information collected as part of prior all appropriate inquiries investigation for the same property provided that the prior information was collected ''during the conduct of all appropriate inquiries in compliance with CERCLA sections 101(35)(B), 101(40)(B) and 107(q)(A)(viii).'' We have deleted the proposed language that would have required the previously conducted investigation to have been done in compliance with the final regulation. This allows for the use of information collected as part of previous all appropriate inquiries, as long as the information was collected in compliance with the statutory provisions for all appropriate inquiries. For property purchased on or after May 31, 1997, therefore, any information collected as part of an assessment in compliance with the ASTM E1527–97 standard or the ASTM E1527–2000 standard may be used as part of a current all appropriate inquiries investigation. For property purchased before May 31, 1997, information from assessments completed and in compliance with the statutory provisions at CERCLA section 101(35)(B)(iv)(I) may be used as part of a current all appropriate inquiries investigation. However, this prior information may only be used if updated in accordance with §§ 312.20(b) and (c) of today's rule.

The final rule continues to recognize that there is value in using previously collected information when such information was collected in accordance with the statutory provisions and good customary business practices, particularly when the use of such previously-collected information will reduce the need to undertake duplicative efforts.

The final rule also retains the requirement that certain aspects of the all appropriate inquiries investigation be updated if the investigation was completed more than 180 days prior to the date of acquisition of the property (or the date on which the prospective landowner takes title to the property) to ensure that an all appropriate inquiries investigation accurately reflects the current environmental conditions at a property. To increase the potential that information collected about the conditions of a property is accurate, as well as increase the potential that opinions and judgments regarding the environmental conditions at a property that are included in an all appropriate inquiries report are based on current and relevant information, the final rule requires that many of the components of the previous inquiries be updated within 180 days prior to the date of acquisition of the property. The components of the all appropriate inquiries that must be updated within 180 days prior to the date on which the property is acquired are:

- Interviews with past and present owners, operators, and occupants (§ 312.23);
- Searches for recorded environmental cleanup liens (§ 312.25);
- Reviews of federal, tribal, state, and local government records (§ 312.26);
- Visual inspections of the facility and of adjoining properties (§ 312.27); and
- The declaration by the environmental professional (§ 312.21(d)).

Also, the final rule retains the proposed requirement that in all cases where a prospective landowner is using previously collected information, the all appropriate inquiries for the current purchase must be updated to include a summary of any relevant changes to the conditions of the property and any specialized knowledge of the prospective landowner.

In today's final rule, we continue to recognize that it is not sufficient to wholly adopt previously conducted all appropriate inquiries for the same property without any review. Certain aspects of the all appropriate inquiries investigation are specific to the current prospective landowner and the current purchase transaction. Therefore, the final rule requires that each all appropriate inquiries investigation include current information related to:

- Any relevant specialized knowledge held by the current prospective landowner and the environmental professional responsible for overseeing and signing the all appropriate inquiries report (i.e., requirements of § 312.28);

• The relationship of the current purchase price to the value of the property, if the property were not contaminated (i.e., requirements of § 312.29); and

• Commonly known or reasonably ascertainable information about the property.

K. Can All Appropriate Inquiries Be Conducted by One Party and Transferred to Another Party?

Proposed Rule

The proposed rule allowed for all appropriate inquiries to be conducted by one party and transferred to another party, provided that certain conditions are met. Under certain circumstances, the prospective landowner, or a grantee, may use a report of all appropriate inquiries conducted for the property by or for another party, including the seller of the property or another party. For example, there are situations where the federal government or a state government agency may conduct the all appropriate inquiries on behalf of the local government for a property being purchased by a local government, such as the ''targeted brownfields assessments'' conducted on behalf of local governments by EPA. This situation also may occur when a state government covers the cost of the all appropriate inquiries for a property owned by a local government or actually conducts the all appropriate inquiries itself when the local government does not have access to appropriate staff or capital resources. A local government may conduct all appropriate inquiries for a third party in its community, such as a private prospective landowner. In addition, local redevelopment agencies may locate a contaminated property, conduct all appropriate inquiries, acquire the property, and then sell the property to a private developer.

The proposed rule allowed for a person acquiring a property, or a grantee, to use the results of an all appropriate inquiries report conducted by or for another party, if the report meets the proposed rule's objectives and performance factors and the person who is seeking to use the previously-collected information or report reviews all information collected and updates the contents of the report as required by § 312.20(c) and necessary to accurately reflect current conditions at the property. In addition, the proposed rule required that the prospective landowner, or grantee, update the inquiries and the report to include any commonly known and reasonably ascertainable information, relevant specialized knowledge held by the prospective landowner and the environmental professional, and the relationship of the purchase price to the value of the property, if it were not contaminated.

Public Comments

Commenters generally supported the proposed provision allowing for all appropriate inquiries investigations conducted by or for one party to be used by another party.

Final Rule

For the reasons discussed in the preamble to the proposed rule and summarized above, the final rule retains the provision allowing that all appropriate inquiries investigations may be conducted by or for one party and used by another party. In all cases, the all appropriate inquiries investigation must be updated to include commonly known and reasonably ascertainable information and any relevant specialized knowledge held by the prospective landowner and environmental professional. In addition, the evaluation of the relationship between the purchase price and the fair market value of the property must reflect the current sale of the property. In all other aspects of the investigation, the all appropriate inquiries must be in compliance with the provisions of the final regulation.

L. What Are the Objectives and Performance Factors for the All Appropriate Inquiries Requirements?

Proposed Rule

As explained in the preamble to the proposed rule, when developing the proposed standards, EPA and the Negotiated Rulemaking Committee structured the proposal around the statutory criteria established by Congress in section 101(35)(B)(iii) of CERCLA. As development of the proposed rule progressed, it became apparent that the purposes and objectives for the individual criterion and the types of information that must be collected to meet the objectives of each criterion often overlapped. For example, in developing standards addressing the criterion requiring a review of historical information, a search for recorded environmental cleanup liens, and a review of government records, the Committee concluded that the objectives of each criterion or activity were similar, which could lead to the collection of the same information to fulfill each of the criterion's objectives. For example, a chain of title document is historic information that may include information on environmental cleanup liens, as well as information on past owners of the property indicating that previous owners managed hazardous substances on the property.

To avoid requiring duplicative efforts, but to ensure that the proposed regulations included standards and practices that result in a comprehensive assessment of the environmental conditions at a property, the proposed all appropriate inquiries standards were structured around a concise set of objectives and performance factors. The proposed objectives and performance factors applied to the standards comprehensively. In conducting the inquiries collectively, the landowner and the environmental professional must seek to achieve the objectives and performance factors and use the objectives and standards as guidelines in implementing, in total, all of the other proposed regulatory standards and practices.

Public Comments

Commenters overwhelmingly supported the proposed approach of structuring the all appropriate inquiries standards around a definitive set of performance factors and objectives. Commenters stated that the establishment of performance factors will improve the quality of environmental site assessments because the performance factors allow for the application of professional judgement and provide flexibility.

A few commenters did not support the proposed approach of structuring the regulations around a set of performance factors and objectives. These commenters asserted that the objectives and performance factors made the regulation too vague and open-ended. In addition, the commenters stated that they want the regulation to be centered around a ''checklist'' of activities, each of which should be required to be completed independently and without consideration of a comprehensive performance approach. Commenters who argued for a checklist approach said that such an approach would ensure that the environmental professional only would have to undertake a finite list of activities and it would be easier (in the commenter's opinion) for property owners to obtain liability protection if the list of activities could be completed without regard to performance goals or an overall objective. These commenters also expressed concern that, if the regulations are based on performance factors that the all appropriate inquiries investigation would not have an

endpoint at which prospective landowners could stop looking for evidence of releases or threatened releases. The commenters believed that under a checklist approach liability protection would be awarded upon completion of all activities on the checklist.

Final Rule

We are retaining the proposed performance factors and objectives in the final rule. We continue to believe, as did many commenters, that basing the regulations on a set of overall performance factors and specific objectives lends clarity and flexibility to the standards. Such an approach also allows for the application of professional judgment and expertise to account for site-specific circumstances. The primary objective of an all appropriate inquiries investigation is to identify conditions indicative of releases and threatened releases of hazardous substances on, at, in, or to the subject property. In the case of recipients of brownfields grants, the objective may be expanded to include petroleum and petroleum products, pollutants, contaminants, and controlled substances, depending upon the scope of the grantee's cooperative agreement.

The performance factors are meant to guide the individual aspects of the investigation toward meeting both the statutory criteria for all appropriate inquiries and the regulatory objectives of (1) collecting necessary information about the uses and ownerships of a property and (2) identifying, through the collection of this information, conditions indicative of releases and threatened releases on, at, in, or to the subject property. By establishing a concise set of objectives and setting some boundaries on the information collection activities through the establishment of performance factors, we believe that the final rule fulfills the statutory objectives, provides for a comprehensive assessment of the environmental conditions at the property, and avoids the conduct of duplicative investigations and data collection efforts.

EPA disagrees with the commenters who argued that the proposed approach of establishing overall objectives and performance factors for the all appropriate inquiries standards would result in an approach that is too vague and open-ended. In fact, by establishing clear objectives and setting parameters to the investigation through a set of performance factors that include gathering information that is publicly available, obtainable from its source within reasonable time and cost constraints, and which can practicably be reviewed, the approach taken in the final rule provides reasonable goals and endpoints to the information collection requirements. The proposed objectives provide a discrete list of the types of information that must be collected as part of the all appropriate inquiries investigation. In addition, the performance factors set boundaries around the efforts that must be taken and the cost burdens that must be incurred to obtain the required information. The fact that the rule is framed within a primary objective, to ''identify conditions indicative of releases and threatened releases of hazardous substances,'' actually reduces the open-ended nature of the investigation and establishes an overall goal for the inquiries.

Commenters who advocated that a checklist approach (or an approach not based upon overall objectives and performance factors) is superior because they believe that it would better provide for a stopping point in the investigation may have misunderstood the statutory requirements that must be met to obtain a defense to CERCLA liability. These commenters may have incorrectly assumed that the completion of the all appropriate inquiries investigation is all that is required to obtain liability protection. The conduct of all appropriate inquiries is only one requirement for obtaining relief from CERCLA liability. Prospective landowners must conduct all appropriate inquiries prior to acquiring a property to qualify for a defense to CERCLA liability as an innocent landowner, bona fide prospective purchaser or contiguous landowner. However, once a property is acquired, the property owner must comply with all of the other statutory criteria necessary to qualify for the liability protections. In particular, landowners must undertake ''reasonable steps'' to ''stop any continuing releases.'' Therefore, the final rule's objective of identifying conditions indicative of releases and threatened releases of hazardous substances on, at, in, or to a property links appropriately with the statutory criteria requiring the landowner to address such releases to qualify for the liability protections.

Conducting the inquiries merely in compliance with a checklist and without the purpose of meeting an overall objective could result in an inability to recognize the value of certain types of information or in chasing down multiple sources of information that may not have added value for meeting the overall objective of the investigation. A lack of information or an inability to obtain information that may affect the ability of an environmental professional to determine whether or not there are conditions indicative of a release or threatened release of a hazardous substance (or other contaminant) on, at, in or to a property can have significant consequences regarding a prospective landowner's ultimate ability to claim protection from CERCLA liability. Failure to identify a release during the conduct of all appropriate inquiries does not relieve the property owner from the responsibility to take reasonable steps and address the release. Even if the Agency agreed with the commenters and adopted a ''checklist'' approach for the regulation, simply conducting the checklist of activities and ending the investigation after each activity is conducted would not result in protection from CERCLA liability (as commenters claimed).

The final rule also establishes that in those cases where certain information included in the list of regulatory objectives (§ 312.20(e)) cannot be found or obtained within the parameters of the performance factors, such data gaps must be identified and the significance of the missing information with regard to the environmental professional's ability to render an opinion on the presence of conditions indicative of releases and threatened releases be documented. Exhaustive and costly efforts do not have to be made to access all available sources of data and find every piece of data and information about a property. Nor does the rule require that duplicative information be sought from multiple sources. The inquiries and the overall investigation must be undertaken to meet the data collection objectives and primarily determine the environmental conditions of the property. Structuring the standards around such objectives will render the results of the investigation more valuable to a landowner in his or her efforts to comply with the post acquisition continuing obligations for obtaining the CERCLA liability protections than an approach framed around a mere checklist of activities.

In retaining the proposed objectives and performance factors, the final rule allows that an all appropriate inquiries investigation need not address each of the regulatory criterion in any particular sequence. In addition, information relevant to more than one criterion need not be collected twice, and a single source of information may satisfy the requirements of more than one criterion and more than one objective. However, the information required to achieve each

of the objectives and performance factors must be obtained for the all appropriate inquiries investigation to be complete. Although compliance with the all appropriate inquiries requirements ultimately will be determined in court, the final rule allows the prospective landowner or grantee and environmental professional to determine the best process and sequence for collecting and analyzing all required information. The sequence of activities and the sources of information used to collect any required information is left to the judgment and expertise of the environmental professional, provided that the overall objectives and the performance factors established for the final rule are met.

In performing the inquiries, including but not limited to conducting interviews, collecting historical data and government records, and inspecting the subject property and adjoining properties, all parties undertaking all appropriate inquiries must be attentive to the fact that the primary objectives of the regulation are to identify the following types of information about the subject property:

- Current and past property uses and occupancies;
- Current and past uses of hazardous substances;
- Waste management and disposal activities that could have caused releases or threatened releases of hazardous substances;
- Current and past corrective actions and response activities undertaken to address past and on-going releases of hazardous substances;
- Engineering controls;
- Institutional controls; and
- Properties adjoining or located nearby the subject property that have environmental conditions that could have resulted in conditions indicative of releases or threatened releases of hazardous substances on, at, in, or to the subject property.

EPA notes that in the case of brownfields grantees, the scope of each of the activities listed above may be broader if the grant or cooperative agreement includes within its scope the assessment of a property for conditions indicative of releases or threatened releases of petroleum and petroleum products, controlled substances, or other contaminants.

The final performance factors for achieving the objectives set forth above are set forth in § 312.20(e) and require the persons conducting the inquiries to: (1) Gather the information that is required for each standard and practice that is publicly available, obtainable from its source within reasonable time and cost constraints, and which can practicably be reviewed, and (2) review and evaluate the thoroughness and reliability of the information gathered in complying with each standard and practice, taking into account information gathered in the course of complying with the other standards and practices of this subpart. In complying with § 312.20(f)(2), if the environmental professional or person conducting the inquiries determines through such review and evaluation that the information is either not thorough or not reliable, then further inquiries should be made to ensure that the information gathered is both thorough and reliable. The performance factors are provided as guidelines to be followed in conjunction with the final objectives for the all appropriate inquiries.

M. What Are Institutional Controls?

The final rule requires the identification of institutional controls placed on the subject property. As defined in § 312.10, institutional controls are non-engineered instruments, such as administrative and legal controls, that among other things, can help to minimize the potential for human exposure to contamination, and protect the integrity of a remedy by limiting land or resource use. For example, an institutional control might prohibit the drilling of a drinking water well in a contaminated aquifer or disturbing contaminated soils. Institutional controls also may be referred to as land use controls, activity and use limitations, etc., depending on the program under which a response action is conducted or a release is addressed.

Institutional controls are typically used whenever contamination precludes unlimited use and unrestricted exposure at the property. Thus, institutional controls may be needed both before and after completion of the remedial action or may be employed in place of a remedial action. Institutional controls often must remain in place for an indefinite duration and, therefore, generally need to survive changes in property ownership (i.e., run with the land) to be legally and practically effective. Some common examples of institutional controls include zoning restrictions, building or excavation permits, well drilling prohibitions, easements and covenants.

The importance of identifying institutional controls during all appropriate inquiries is twofold. First, institutional controls are usually necessary and important components of a remedy. Failure to abide by an institutional control may put people at risk of harmful exposure to hazardous substances. Second, an owner wishing to maintain protections from CERCLA liability as an innocent landowner, contiguous property owner, or bona fide prospective purchaser must fulfill ongoing obligations to: (1) Comply with any land use restrictions established or relied on in connection with a response action and (2) not impede the effectiveness or integrity of any institutional control employed in connection with a response action. For a more detailed discussion of these requirements please see EPA, Interim Guidance Regarding Criteria Landowners Must Meet in Order to Qualify for Bona Fide Prospective Purchaser, Contiguous Property Owner, or Innocent Landowner Limitations on CERCLA Liability (Common Elements, 2003).

Those persons conducting all appropriate inquiries may identify institutional controls through several of the standards and practices set forth in this rule. As noted, implementation of institutional controls may be accomplished through the use of several administrative and legal mechanisms, such as zoning restrictions, building permit requirements, easements, covenants, etc. For example, an easement implementing an institutional control might be identified through the review of chain of title documents under § 312.24(a). Furthermore, interviews with past and present owners, operators, or occupants pursuant to § 312.23; and reviews of federal, tribal, state, and local government records under § 312.26, may identify an institutional control or refer a person to the appropriate source to find an institutional control. For example, a review of federal Superfund records, including Records of Decision and Action Memoranda, as well as other information contained in the CERCLIS database, may indicate that zoning was selected as an institutional control or an interview with a current operator may reveal an institutional control as part of an operating permit.

The final rule requires that all appropriate inquiries include a search for institutional controls placed upon the subject property as part of the requirements for reviewing federal, state, tribal, and local government records. A discussion of these requirements is provided in section IV.S below.

N. How Must Data Gaps Be Addressed in the Conduct of All Appropriate Inquiries?

Proposed Rule

The proposed rule required environmental professionals, prospective landowners, and brownfields grant recipients to identify data gaps that affect their ability to identify conditions indicative of releases or threatened releases of hazardous substances (and, in the case of grant recipients, pollutants, contaminants, petroleum and petroleum products, and controlled substances). The proposed rule also required these persons to identify the sources of information consulted to address, or fill, the data gaps and then comment upon the significance of the data gaps with regard to the ability to identify conditions indicative of releases or threatened releases of hazardous substances on, at, in or to the subject property. The proposed rule defined a data gap as a lack of or an inability to obtain information required by the standards and practices listed in the proposed regulation, despite good faith efforts by the environmental professional or the prospective landowner or grant recipient to gather such information.

Public Comments

Some commenters raised concerns that the proposed definition of a data gap may result in difficulties in determining when an all appropriate inquiries investigation is complete. These commenters stated that the need to identify and comment on the significance of data gaps may render it difficult to complete an investigation, that could potentially affect a property owner's ability to claim protection from CERCLA liability. Other commenters asserted that because an investigation could be considered complete despite the existence of a data gap, a regulatory loophole exists (in the opinion of the commenters) that will result in the property owner's being able to claim protection from CERCLA liability even when the all appropriate inquiries investigation results in a failure to identify a release or threatened release at a property.

Some commenters stated that the proposed requirement to identify data gaps, or missing information, that may affect the environmental professional's ability to render an opinion regarding the environmental conditions at a property and comment on their significance in this regard will lend credibility to the inquiry's final report.

Final Rule

We are retaining the proposed definition of data gap and the proposed requirements for identifying and commenting on the significance of data gaps. For the purposes of today's final rule, a ''data gap'' is a lack of or inability to obtain information required by the standards and practices listed in the regulation, despite good faith efforts by the environmental professional or the prospective landowner (or grant recipient) to gather such information pursuant to the objectives for all appropriate inquiries. In today's final rule, § 312.20(g) requires environmental professionals, prospective landowners, and grant recipients to identify data gaps that affect their ability to identify conditions indicative of releases or threatened releases of hazardous substances (and in the case of grant recipients pollutants, contaminants, petroleum and petroleum products, and controlled substances). The final rule requires such persons to identify the sources of information consulted to address the data gaps and comment upon the significance of the data gaps with regard to the ability to identify conditions indicative of releases or threatened releases. Section 312.21(c)(2) also requires that the inquiries report include comments regarding the significance of any data gaps on the environmental professional's ability to provide an opinion as to whether the inquiries have identified conditions indicative of releases or threatened releases.

In response to issues raised by commenters, we point out that the final regulation, as did the proposal, requires that environmental professionals document and comment on the significance of only those data gaps that ''affect the ability of the environmental professional to identify conditions indicative of releases or threatened releases of hazardous substances * * * on, at, in, or to the subject property.'' If certain information included within the objectives and performance factors for the final rule cannot be found and the lack of certain information, in light of all other information that was collected about the property, has no bearing on the environmental professional's ability to render an opinion regarding the environmental conditions at the property, the final rule does not require the lack of such information to be documented in the final report. Given the restriction on the type of data gaps that must be documented, and given that the documentation is restricted to instances where the lack of information hinders the ability of the environmental professional to render an opinion regarding the environmental conditions at the property, we disagree with the commenters who assert that the requirement is overly burdensome or will result in the inability to complete the required investigations.

Commenters who asserted that the requirement to document data gaps would result in a ''loophole'' that would allow property owners to claim protection from CERCLA liability after conducting an incomplete all appropriate inquiries investigation may have misunderstood the scope of the rule and the statutory requirements for obtaining the liability protections. As explained in detail in Section II of this preamble, the conduct of all appropriate inquiries is only one requirement necessary for obtaining protection from CERCLA liability. The mere fact that a prospective landowner conducted all appropriate inquiries does not provide an individual with protection from CERCLA liability. To qualify as a bona fide prospective purchaser, innocent landowner or a contiguous property owner, a person must, in addition to conducting all appropriate inquiries prior to acquiring a property, comply with all of the other statutory requirements. These criteria are summarized in section II.D. of this preamble. The all appropriate inquiries investigation may provide a prospective landowner with necessary information to comply with the other post-acquisition statutory requirements for obtaining liability protections. The conduct of an incomplete all appropriate inquiries investigation, or the failure to detect a release during the conduct of all appropriate inquiries, does not exempt a landowner from his or her post-acquisition continuing obligations under other provisions of the statute. Failure to comply with any of the statutory requirements may be problematic in a claim for protection from liability.

The final rule retains the requirement to identify data gaps, address them when possible, and document their significance. Prospective landowners may wish to consider the potential significance of any data gaps, that may exist after conducting the pre-acquisition all appropriate inquiries in assessing their obligations to fulfill the additional statutory requirements after purchasing a property.

If a person properly conducts all appropriate inquiries pursuant to this rule, including the requirements concerning data gaps at §§ 312.10, 312.20(g) and 312.21(c)(2), the person may fulfill the all appropriate inquiries requirements of CERCLA sections

107(q), 107(r), and 101(35), even when there are data gaps in the inquiries. However, as explained further in this preamble, fulfilling the all appropriate inquiries requirements does not, by itself, provide a person with a protection from or defense to CERCLA liability. Failure to identify a release or threatened release during the conduct of all appropriate inquiries does not negate the landowner's continuing responsibilities under the statute, including the requirements to take reasonable steps to stop the release, prevent a threatened release, and prevent exposure to the release or threatened release once the landowner has acquired a property. Also, if an existing institutional control or land use restriction is not identified during the conduct of all appropriate inquiries prior to the acquisition of a property, a landowner is not exempt from complying with the institutional control or land use restriction after acquiring the property. None of the other statutory requirements for the liability protections is satisfied by the results of the all appropriate inquiries.

We emphasize that the mere fact that a prospective landowner conducted all appropriate inquiries does not provide an individual with a defense to or limitation from CERCLA liability. To qualify as a bona fide prospective purchaser, innocent landowner or a contiguous property owner, a person must, in addition to conducting all appropriate inquiries prior to acquiring a property, comply with all of the other statutory requirements. These criteria are summarized in section II.D. of this preamble. The all appropriate inquiries investigation may provide a prospective landowner with necessary information to comply with the other post-acquisition statutory requirements for obtaining liability protections. The failure to detect a release during the conduct of all appropriate inquiries does not exempt a landowner from his or her post-acquisition continuing obligations under other provisions of the statute.

Section 312.20(g) of the final rule points out that one way to address data gaps may be to conduct sampling and analysis. The final regulation does not require that sampling and analysis be conducted to comply with the all appropriate inquiries requirements. The regulation only notes that sampling and analysis may be conducted, where appropriate, to obtain information to address data gaps. The Agency notes that sampling and analysis may be valuable in determining the possible presence and extent of potential contamination at a property. Such information may be valuable for determining how a landowner may best fulfill his or her post-acquisition continuing obligations required under the statute for obtaining protection from CERCLA liability.

O. Do Small Quantities of Hazardous Substances That Do Not Pose Threats to Human Health and the Environment Have To Be Identified in the Inquiries?

Proposed Rule

The environmental professional should identify and evaluate all evidence of releases or threatened releases on, at, in or to the subject property, in accordance with generally accepted good commercial and customary standards and practices. However, the proposed rule provided that the environmental professional need not specifically identify, in the written report prepared pursuant to § 312.21(c), extremely small quantities or amounts of contaminants, so long as the contaminants generally would not pose a threat to human health or the environment.

Public Comments

EPA received no significant comment on the proposed provision on the identification of extremely small quantities of contamination.

Final Rule

The final retains the provision that the environmental professional need not specifically identify, in the written report prepared pursuant to § 312.21(c), extremely small quantities or amounts of contaminants, so long as the contaminants generally would not pose a threat to human health or the environment.

P. What Are the Requirements for Interviewing Past and Present Owners, Operators, and Occupants?

Proposed Rule

CERCLA section 101(35)(B)(iii)(II) requires EPA to include in the standards and practices for all appropriate inquiries ''interviews with past and present owners, operators, and occupants of the facility for the purpose of gathering information regarding the potential for contamination at the facility.'' The Agency proposed that the inquiry of the environmental professional include interviews with the current owner(s) and occupant(s) of the subject property. In addition, the proposed rule required that interviews be conducted with current and past facility managers with relevant knowledge of the property, as well as past owners, occupants, or operators, and employees of current and past occupants of the property, as necessary, to meet the proposed objectives and performance factors. In the case of abandoned properties, the Agency proposed that the inquiry of the environmental professional include interviewing one or more owners or occupants of neighboring or nearby properties to obtain information on current and past uses of the property and other information necessary to meet the objectives and performance factors.

Public Comments

Several commenters asserted that the requirement to interview current and past owners and occupants of a property may be burdensome. Commenters gave several reasons for asserting that interviews may be burdensome. Some commenters said it is difficult to locate current and past owners and occupants. Other commenters questioned the accuracy of any information that would be provided by a current or past owner or occupant. One commenter expressed concern that the requirement to conduct interviews of current and past owners and occupants of a property could result in the environmental professional divulging information regarding the sale of the property against the prospective landowner's wishes.

In the case of the proposed interview requirements for abandoned properties, some commenters opposed the requirement to interview at least one owner or occupant of a neighboring property. Commenters stated that the proposed requirement was unreasonable and that it is impractical to attempt to find and contact neighboring property owners and occupants. Some commenters said that neighboring property owners and occupants can not be relied upon to provide accurate information about a property.

Final Rule

The requirements for conducting interviews of past and present owners, operators, and occupants of the subject property are included in § 312.23. The final rule identifies these interviews as being within the scope of the inquiry of the environmental professional. Therefore, all interviews must be conducted by the environmental professional or by someone under the supervision or responsible charge of the environmental professional. The intent is that an individual meeting the definition of an environmental professional (§ 312.10) must oversee the conduct of, or review and approve the results of, the interviews to ensure the interviews are conducted in compliance with the objectives and performance

factors (§ 312.20). This is to ensure that the information obtained from the interviews provides sufficient information, in conjunction with the results of all other inquiries, to allow the environmental professional to render an opinion with regard to conditions at the property that may be indicative of releases or threatened releases of hazardous substances (and pollutants, contaminants, petroleum and petroleum products, and controlled substances, if applicable).

The final rule requires the environmental professional's inquiry to include interviewing the current owner and occupant of the subject property. In addition, the rule provides that the inquiry of the environmental professional include interviews of additional individuals, including current and past facility managers with relevant knowledge of the property, past owners, occupants, or operators of the subject property, or employees of current and past occupants of the subject property, as necessary to meet the rule's objectives and in accordance with the performance factors. A primary purpose of the interviews portion of the all appropriate inquiries is to obtain information regarding the current and past ownership and uses of the property, and obtain information regarding the potential environmental conditions of the property. The final rule does not prescribe particular questions that must be asked during the interview. The type and content of any questions asked during interviews will depend upon the site-specific conditions and circumstances and the extent of the environmental professional's (or other individual's under the supervision or responsible charge of the environmental professional) knowledge of the property prior to conducting the interviews. Therefore, the final rule does not include specific questions for the interviews, but requires that the interviews be conducted in a manner that achieves the objectives and performance factors. Interviews with current and past owners and occupants may provide opportunities to collect information about a property that was not previously recorded nor well documented and may provide valuable perspectives on how to find or interpret information required to complete other aspects of the all appropriate inquiries. Information gathered during the interview portion of the all appropriate inquiries may in turn provide valuable information for the on-site visual inspection. Persons conducting the interviews of current and past owners and occupants may want to spend some time during the interviews requesting information on the locations of operations or units used to store or manage hazardous substances on the property.

In the case of properties where there may be more than one owner or occupant, or many owners or occupants, the final rule requires the inquiry to include interviews of major occupants and those occupants that are using, storing, treating, handling or disposing (or are likely to have used, stored, treated, handled or disposed) of hazardous substances (or pollutants, contaminants, petroleum and petroleum products, and controlled substances, as applicable) on the property. The rule does not specify the number of owners and occupants to be interviewed. The environmental professional must perform this function in the manner that best fulfills the objectives and performance factors for the inquiries in § 312.20(e) and (f). Environmental professionals may use their professional judgment to determine the specific occupants to be interviewed and the total number of occupants to be interviewed in seeking to comply with the objectives and performance factors for the inquiries. Interviews must be conducted with individuals most likely to be knowledgeable about the current and past uses of the property, particularly with regard to current and past uses of hazardous substances on the property.

In response to commenters who asserted that the proposed interview requirements are burdensome, we point out that the statutory criteria in CERCLA section 101(35)(B)(iii) include ''interviews with past and present owners, operators, and occupants of the facility for the purpose of gathering information regarding the potential for contamination at the facility.'' EPA asserts that it was clearly congressional intent that the all appropriate inquiries investigation include the conduct of interviews with current and past owners and occupants. We also assert that current and past owners and occupants of a property may be excellent sources of information regarding past and on-going uses of the property as well as the types of waste management activities that were undertaken at the property. Given that the ASTM E1527 Phase 1 Environmental Site Assessment Process, the interim standard for the conduct of all appropriate inquiries, includes requirements for conducting interviews with the current owners and occupants of a property and provides that other owners and occupants are good additional sources of information about property uses and potential contamination at a property, we disagree with commenters who asserted that the proposed and final requirements for conducting interviews will be overly burdensome.

In the case of abandoned properties, the final rule requires the inquiry of the environmental professional to include interviews with one or more owners or occupants of neighboring or nearby properties. In the case of abandoned properties, it most likely will be difficult to identify or interview current or past owners and occupants of the property. Therefore, the final rule requires that at least one owner or occupant of a neighboring property be interviewed to obtain information regarding past owners or uses of the property in cases where the subject property is abandoned and no current owner is available to be interviewed. The final rule defines an abandoned property as a ''property that can be presumed to be deserted, or an intent to relinquish possession or control can be inferred from the general disrepair or lack of activity thereon such that a reasonable person could believe that there was an intent on the part of the current owner to surrender rights to the property.'' As is the case with interviews conducted with current and past owners and occupants of the property, interview questions should be developed prior to the conduct of the interviews, and tailored to gather information to achieve the rule's objectives and performance factors. The final rule contains no specific requirements with regard to the type or content of questions that must be asked during the interviews.

EPA disagrees with commenters who stated that it will be difficult to locate and contact neighboring property owners and occupants. The final rule, as did the proposed rule, requires that the environmental professional only locate and interview one neighboring property owner or occupant and only in those cases where no owner or occupant of the subject property can be identified. An environmental professional should be able to locate one owner or occupant of a neighboring property when conducting the on-site visual inspection of the property. If the environmental professional cannot easily locate an owner and occupant of a neighboring property, he or she may enlist the assistance of local government officials in identifying a neighboring property owner or occupant. As is the case with information ascertained from any interview, the environmental professional must apply his or her judgment when drawing conclusions

based on the information provided in interviews with neighboring property owners and occupants and should attempt to verify any information provided by reviewing other available sources of information.

Q. What Are the Requirements for Reviews of Historical Sources of Information?

Proposed Rule

Historical documents and records may contain information regarding past ownership and uses of a property that may be essential to assessing the potential for environmental conditions indicative of releases or threatened releases of hazardous substances to be present at the property. Historical documents and records, among others, may include chain of title documents, land use records, aerial photographs of the property, fire insurance maps, and records held at local historical societies. The proposed rule required that the inquiry of the environmental professional include a review of historical documents and records for the subject property that document the ownership and use of the property for a period of time as far back in the history of the property as it can be shown that the property contained structures, or from the time the property was first used for residential, agricultural, commercial, industrial, or governmental purposes.

Public Comments

Some commenters raised concerns regarding the proposed requirements to review historical records covering ''a period of time as far back in the history of the subject property as it can be shown that the property contained structures or from the time the property was first used for residential, agricultural, commercial, industrial, or governmental purposes.'' Commenters said that the proposed historical scope of the records search is too extensive. Some commenters requested that in the final rule EPA adopt the provisions for historical records searches provided in the ASTM E1527–2000 standard. Several commenters requested that EPA explicitly require as part of the review of historical records a review of chain of title documents. The commenters asserted that a review of chain of title documents is the only reliable way to identify previous owners of a property.

Final Rule

The statutory criteria in the Brownfields Amendments require that reviews of historical sources of information be conducted to ''determine previous uses and occupancies of the real property since the property was first developed.'' The final rule requires (as did the proposed rule) that historical records on the subject property be searched for information on the property covering a time period as far back in history as there is documentation that the property contained structures or was placed into use of some form. This provision follows the statutory language. In addition, the final rule requires that historical documents and information be reviewed to obtain necessary information for meeting the objectives and performance factors in § 312.20(e) and (f). If a search of historical sources of information results in an inability of the environmental professional to document previous uses and occupancies of the property as far back in history as it can be shown that the property contained structures or was placed into use of some form, and such information is not acquired elsewhere during the investigation then it must be documented as a data gap to the inquiries. The requirements of §§ 312.20(g) and 312.21(c)(2) are applicable to all instances in the all appropriate inquiries that result in data gaps.

Despite the concerns raised by some commenters regarding the scope of the historical records review, we assert that the scope of the requirements in the final rule (as did the scope of the proposed requirements) reflects the statutory language provided in CERCLA section 101(35)(B)(iii). The statutory criterion provide that all appropriate inquiries include ''reviews of historical sources * * * to determine previous uses and occupancies of the real property since the property was first developed.'' We point out that the final rule does allow the environmental professional to exercise his or her professional judgment ''in context of the facts available at the time of the inquiry as to how far back in time it is necessary to search historical records.'' We believe that this provides sufficient flexibility to allow for any circumstances where, due to the availability of other information about a property an environmental professional may conclude that a comprehensive search of historical records is not necessary to meet the objectives and performance factors.

In response to commenters that requested that EPA adopt the provisions of the ASTM E1527–2000 standard for conducting searches of historical records, we assert that the scope of the historical records search in today's final rule is very similar to the scope of ASTM E1527 standard. The ASTM E1527 standard, at section 7.3.1, requires that historical sources of information be searched to identify ''all obvious uses of the property* * *from the present, back to the property's obvious first developed use, or back to 1940, whichever is earlier.'' Given that the language of both the ASTM E1527 standard and the requirements in the final rule for conducting historical records searches is very similar, we conclude that the intent is the same and the final rule represents no change from current good customary business practice. In addition, the final rule provides for sufficient flexibility both within the application of the performance factors to the historical records search requirements and in allowing the environmental professional to apply his or her judgment ''in the context of the facts available at the time of the inquiry.''

The final rule does not require that any specific type of historic information be collected. In particular, the rule does not require that persons obtain a chain of title document for the property. The rule allows for the environmental professional to use professional judgment when determining what types of historical documentation may provide the most useful information about a property's ownership, uses, and potential environmental conditions when seeking to comply with the objectives and performance factors for the inquiries. Although we agree with commenters that chain of title documents may serve as an important source of information regarding past ownership of a property, it may not be the only source of this information. To the extent that chain of title documents are otherwise obtained for other purposes during the conduct of a property sale or transaction, we believe that these documents can easily be made available to the environmental professional by the prospective landowner. Given that the final rule requires that historical records be searched for information on previous uses and ownership of a property for as far back in the history of property as can be shown that the property contained structures or was first used for residential, agricultural, commercial, industrial or governmental purposes, if chain of title documents are the best and most easily attainable source of this information, we assume that such documents will be obtained and used by the environmental professional.

Given the wide variety of property types and locations to which the final rule could apply, any list of specific documents could result in undue burdens on many prospective

landowners and grantees due to difficulties in collecting any specific document for any particular property or property location. Therefore, the final requirements for reviewing historical documents allow the prospective landowner or grantee and the environmental professional to use their judgment, in accordance with generally accepted good commercial and customary standards and practices, in locating the best available sources of historical information and reviewing such sources for information necessary to comply with the rule's objectives and performance factors.

As explained in section IV.J of this preamble, the prospective landowner, grantee, or environmental professional may make use of previously collected information about a property when conducting all appropriate inquiries. The collection of historical information about a property may be a particular case where previously collected information may be valuable, as well as easily accessible. In addition, nothing in the rule prohibits a person from using secondary sources (*e.g.*, a previously conducted title search) when gathering information about historical ownership and usage of a property. As explained in section IV.J, information must be updated if it was last collected more than 180 days prior to the date of acquisition of the property.

R. What Are the Requirements for Searching for Recorded Environmental Cleanup Liens?

For purposes of this rule, recorded environmental cleanup liens are encumbrances on property for the recovery of incurred cleanup costs on the part of a state, tribal or federal government agency or other third party. Recorded environmental cleanup liens often provide an indication that environmental conditions either currently exist or previously existed on a property that may include the release or threatened release of a hazardous substance. The existence of an environmental cleanup lien should be viewed as an indicator of potential environmental concerns and as a basis for further investigation into the potential existence of on-going or continued releases or threatened releases of hazardous substances on, at, in, or to the subject property.

Proposed Rule

The proposed rule required that prospective landowners and grantees, or environmental professionals on their behalf, search for environmental cleanup liens that are recorded under federal, tribal, state, or local law. Environmental cleanup liens that are not recorded by government entities or agencies are not addressed by the language of the statute (the statute speaks only of ''recorded liens''); therefore, the proposed rule required that only a search for recorded environmental liens be included in the all appropriate inquiries investigation.

Public Comments

Some commenters asked that EPA state more clearly that the responsibility for searching for environmental cleanup liens rests with the prospective landowner and not the environmental professional. A few commenters requested that the Agency provide some guidance on where to find recorded environmental cleanup liens.

Final Rule

EPA is finalizing the proposed requirements to search for recorded environmental cleanup liens without changes. The all appropriate inquiries investigation must include a search for recorded environmental cleanup liens. The final rule allows that the search for recorded environmental cleanup liens be performed either by the prospective landowner or grantee, or through the inquiry of the environmental professional. The search for such liens may not necessarily require the expertise of an environmental professional and therefore may be more efficiently or more cost-effectively performed by the prospective landowner or grantee, or his or her agent. Such liens may be included as part of the chain of title documents or may be recorded in some other manner or format by state or local government agencies. If such information is collected by the prospective landowner or grantee, or other agent who is not under the supervision or responsible charge of the environmental professional, the final rule allows for, but does not require, the information that is collected by or on the behalf of the prospective landowner or grantee to be provided to the environmental professional. If the information is provided to the environmental professional, he or she can then make use of such information during the conduct of the all appropriate inquiries and when rendering conclusions or opinions regarding the environmental conditions of the property. If such information is not provided to the environmental professional and the lack of such information affects the ability of the environmental professional to identify conditions indicative of releases or threatened releases of hazardous substances on, at, in or to the property, the lack of information should be noted as a data gap (per the requirements of § 312.21(b)(2)).

Although some commenters requested that EPA be more explicit in the final rule in requiring that the search for recorded environmental cleanup liens be conducted by the prospective landowner (or grantee), we believe that the decision of who conducts the search may be best left up to the judgment of the prospective landowner or grantee and environmental professional. The final rule provides in § 312.22 that the search for recorded environmental cleanup liens can fall outside the inquiries conducted by the environmental professional. The search for recorded environmental cleanup liens is not included as part of the requirements governing the results of an inquiry by an environmental professional (§ 312.21). Therefore, the search may be conducted by the prospective landowner or grantee, his or her attorney or agent, or the environmental professional.

We offer one caution about the conclusion that might be drawn if no recorded environmental cleanup liens are found. If EPA is conducting a cleanup at site at the time it is transferred or acquired, EPA is able to record a lien post acquisition. For example, one type of lien, often referred to as a windfall lien, has no statute of limitations and arises at the time EPA first spends Superfund money. States and localities may have similar mechanisms. Therefore, even if a recorded environmental cleanup lien is not found during the conduct of the all appropriate inquiries investigation, one may be recorded at a later date if EPA is undertaking a cleanup or response action at the property.

With regard to commenters who requested that EPA provide guidance on where to search for environmental cleanup liens, we advise that prospective landowners and grantees to seek the advice of a local realtor, real estate attorney, title company, or other real estate professional. Environmental cleanup liens may be recorded as part of the land title records or as part of other state or local government land or real estate records. Recorded environmental cleanup liens may be recorded in different places, depending upon the particular state and particular locality in which the property is located.

S. What Are the Requirements for Reviewing Federal, State, Tribal, and Local Government Records?

Federal, tribal, state and local government records may contain

information regarding environmental conditions at a property. In particular, government records, or data bases of such information, may include information on previously reported releases of hazardous substances, pollutants, contaminants, petroleum and petroleum products and controlled substances. Government records and available databases can provide valuable information on remedial actions and emergency response activities that may have been conducted at a particular property. Government records also may include information on institutional controls related to a particular property. For example, in the case of NPL sites, EPA Superfund records, including Action Memoranda and Records of Decision, may have information on institutional controls in place at such properties. Government records also may include information on activities or property uses that could cause releases or threatened releases to be present at a property.

Proposed Rule

The proposed rule required that federal, state, tribal and local government records be searched for information necessary to achieve the objectives and performance factors, including information regarding the use and occupancy of and the environmental conditions at the subject property and conditions of nearby or adjoining properties that could have a impact upon the environmental conditions of the subject property. The proposed rule included requirements to search federal, tribal, state, and local government records for information indicative of environmental conditions at the subject property.

The proposed rule also included requirements to review government records, or data bases of information contained in government records, for information about nearby and adjoining properties. Reviews of such records may provide valuable information regarding the potential impact to the subject property from hazardous substances and petroleum contamination migrating from contiguous or nearby properties. The proposed rule included required minimum search distances for government records searches of nearby properties.

To account for property-specific and regionally-specific conditions that can influence the appropriateness of the proposed search distances for any given type of record and property, the proposed rule allowed the environmental professional to adjust the applicable search distances when searching for information about off-site properties by applying professional judgment. For example, appropriate search distances for properties located in rural settings may differ from appropriate search distances for urban settings. In addition, ground water flow direction, depth to ground water, arid weather conditions, the types of facilities located on nearby properties, and other factors may influence the degree of impact to a property from off-site sources. Therefore, the proposed rule allowed the environmental professional to adjust any or all of the proposed minimum search distances for any of the record types, based upon professional judgment and the consideration of site-specific conditions or circumstances when seeking to achieve the proposed objectives and performance factors for the required inquiries.

Public Comments

The Agency received a variety of comments in which commenters expressed concerns about the applicability or adequacy of specific types of government records included in the proposed rule (e.g., CERCLIS records, information on RCRA facilities, ERNS). A few commenters raised concerns about the availability of tribal records. Several commenters raised concerns regarding the availability of government records on institutional controls. Commenters also pointed out that, given the lack of available databases and other information on institutional controls, it may be particularly difficult to search for institutional controls associated with adjoining and nearby properties.

Final Rule

We are finalizing the requirements for reviewing federal, state, tribal, and local government data bases as proposed, with one exception. The final rule requires that government records and available lists for institutional and engineering controls be searched only for information on such controls at the subject property. All appropriate inquiries investigations do not have to include searches for institutional and engineering controls in place at nearby and adjoining properties. We made this change because we agree with commenters who pointed out that information on institutional and engineering controls may be difficult to find as there are no available national sources of this information. Only a few states have available lists of institutional controls. In addition, the information that may be inferred from knowledge of institutional and engineering controls that are in place at adjoining and nearby properties, i.e., that there was a response action, a remedial action, or corrective action taken at the site, can be inferred from information obtained from other sources (e.g., CERCLIS, RCRIS, state records of response actions).

It is important that prospective landowners obtain information on institutional and engineering controls in place at the property being acquired. It also may be important to locate information on such controls in place at nearby properties. To obtain the liability protections afforded under CERCLA (i.e., innocent landowner, contiguous property owner, bona fide prospective purchaser), the statute requires, as part of the ''continuing obligations,'' that the property owner comply with all land use restrictions and not impede the effectiveness of institutional controls. Therefore, it is important that information on institutional and engineering controls be obtained by prospective landowners, even though information about such controls may not have been routinely obtained as part of due diligence practices prior to today's final rule (we note that the current interim standard does include provisions for searching for ''activity and use limitations'').

Routine ''chain of title'' reports may not always contain information labeled as institutional or engineering controls. However, title companies may include, as part of the chain of title reports ''restrictions of record on title'' when such restrictions are recorded because of underlying environmental conditions at a property. Therefore, when requesting information on ''institutional controls'' or ''engineering controls'' about a property, prospective landowners, grantees, and environmental professionals may want to request information on ''restrictions of record on title'' as well, in case any available information on institutional or engineering controls is so labeled in the chain of title records. In addition to chain of title records, information on institutional controls and engineering controls may be recorded in local land records. Also, some states are beginning to create registries to track information on institutional and engineering controls. Therefore, prospective landowners and grantees should consider consulting these other sources of information in addition to chain of title records for information on institutional and engineering controls.

In response to the commenters who pointed out particular shortcomings with specific sources of information (e.g., CERCLIS, RCRIS, ERNS) we point out that the requirement to review government records explicitly provides

that the reviews be conducted in compliance with the objectives and performance standards. If a particular source of information cannot be accessed within a reasonable time frame or within reasonable costs, then the information should be sought from other sources. In addition, if a particular source of information will only provide information that can more easily or readily be found elsewhere, the particular source does not have to be obtained or consulted. If application of the objectives and performance standards to the requirement to review government records results in an inability to provide necessary information (or information identified as necessary in the objectives for the final rule), then the lack of information should be documented as a data gap in the final report. In addition, the environment professional should comment on the significance the lack of any information has on his or her ability to identify conditions at the property that are indicative of releases or threatened releases of hazardous substances (in compliance with § 312.21(c)(2)).

In response to commenters who pointed out that it may be difficult to obtain or gain access to tribal government records, we point out that such records need only be searched for and reviewed in those instances where the subject property is located on or near tribal-owned lands. In these cases, it is important to attempt, within the scope of the rule's objectives and performance factors, to review such records. When such records are not available, necessary information should be sought from other sources. When no information is available and the objectives and performance factors of the final rule cannot be met and the result is a lack of information that may affect the environmental professional's ability to render an opinion regarding the environmental conditions of a property, the lack of information must be documented as a data gap in compliance with § 312.21(c)(2).

The final rule requires that the following types of government records or data bases of government records be reviewed to obtain information on the subject property and nearby properties necessary to meet the rule's objectives and performance standards:

1. Government records of reported releases or threatened releases at the subject property, including previously conducted site investigation reports.

2. Government records of activities, conditions, or incidents likely to cause or contribute to releases or threatened releases, including records documenting regulatory permits that were issued to current or previous owners or operators at the property for waste management activities and government records that identify the subject property as the location of landfills, storage tanks, or as the location for generating and handling activities for hazardous substances, pollutants, contaminants, petroleum and petroleum products, or controlled substances.

3. CERCLIS records—EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database contains general information on sites across the nation and in the U.S. territories that have been assessed by EPA, including sites listed on the National Priorities List (NPL). CERCLIS includes information on facility location, status, contaminants, institutional controls, and actions taken at particular sites. CERCLIS also contains information on sites being assessed under the Superfund Program, hazardous waste sites and potential hazardous waste sites.

4. Government-maintained records of public risks—the all appropriate inquiries government records search should include a search for available records documenting public health threats or concerns caused by, or related to, activities currently or previously conducted at the site.

5. Emergency Response Notification System (ERNS) records—ERNS is EPA's data base of oil and hazardous substance spill reports. The data base can be searched for information on reported spills of oil and hazardous substances by state.

6. Government registries, or publicly available lists of engineering controls, institutional controls, and land use restrictions. The all appropriate inquiries government records search must include a search for registries or publicly available lists of recorded engineering and institutional controls and recorded land use restrictions. Such records may be useful in identifying past releases on, at, in, or to the subject property or identifying continuing environmental conditions at the property.

The final rule requires that government records be searched to identify information relative to the objectives and in accordance with the performance factors on: (1) Adjoining and nearby properties for which there are governmental records of reported releases or threatened releases (e.g., properties currently listed on the National Priorities List (NPL), properties subject to corrective action orders under the Resource Conservation and Recovery Act (RCRA), properties with reported releases from leaking underground storage tanks); (2) adjoining and nearby properties previously identified or regulated by a government entity due to environmental conditions at a site (e.g., properties previously listed on the NPL, former CERCLIS sites with notices of no further response actions planned (NFRAP)); and (3) adjoining and nearby properties that have government-issued permits to conduct waste management activities (e.g., facilities permitted to manage RCRA hazardous wastes).

In the case of government records searches for nearby properties, the final rule includes minimum search distances (e.g., properties located either within one mile or one-half mile of the subject property) for obtaining and reviewing records or data bases concerning activities and facilities located on nearby properties. The search distances are based upon our best judgment regarding the potential impacts that incidents or circumstances at an adjoining property may have on the subject property. With the exception of the required searches for institutional and engineering controls, the search distances finalized in today's rule are the search distances that were proposed in the proposed rule. For example, government records identifying properties listed on the NPL must be searched to obtain information on NPL sites located within one mile of the subject property. NPL sites located beyond one mile of a property most likely will have little or no impact on the environmental conditions at the subject property. In the case of two types of records, records of hazardous waste handler and generator records and permits, records of registered storage tanks, the final requirements specify that such records only be searched for information specific to the subject property and adjoining properties (the rule contains no requirement to search for these two types of government records for other nearby properties). The final rule requires that available lists of institutional controls and engineering controls only be searched for information on the subject property.

In the case of all the government records listed above and in the final rule in § 312.26, the requirements of this criterion may be met by searching data bases containing the same government records mentioned in the list above that are accessible and available through government entities or private sources. The review of actual records is not necessary, provided that the same information contained in the government records and required to

meet the requirements of this criterion and achieve the objectives and performance factors for these regulations is attainable by searching available data bases.

The final rule allows the environmental professional to adjust the search distances for reviewing government records of nearby properties based upon his or her professional judgment. Environmental professionals may consider one or more of the following factors when determining an alternative appropriate search distance:

- The nature and extent of a release;
- Geologic, hydrogeologic, or topographic conditions of the subject property and surrounding environment;
- Land use or development densities;
- The property type;
- Existing or past uses of surrounding properties;
- Potential migration pathways (e.g., groundwater flow direction, prevalent wind direction); or
- Other relevant factors.

The final rule requires environmental professionals to document the rationale for making any modifications to the required minimum search distances included in § 312.26 of the regulation.

T. What Are the Requirements for Visual Inspections of the Subject Property and Adjoining Properties?

Proposed Rule

The proposed rule required that an on-site visual inspection of the subject property be conducted as part of the all appropriate inquiries investigations, with one limited exception. The proposed on-site visual inspection requirements included requirements to inspect any facilities and improvements on the property as well as all areas where hazardous substances are or may have been used, stored, treated, handled, or disposed. In addition, the proposed rule included requirements to visually inspect adjoining properties. The proposal required that inspections of adjoining properties be conducted from the property line, public right-of-way, or other vantage point.

The proposed rule included a limited exception from the requirement to conduct the visual inspection ''on-site.'' The proposed exception provided that in unusual circumstances where an on-site visual inspection cannot be performed because of physical limitations, remote and inaccessible location, or another inability to obtain access to the property, provided good faith efforts are taken to obtain such access and access to the property could not be obtained, a visual inspection could be conducted from an off-site vantage point (e.g., property-line, airplane, public right-of-way). To qualify for the exception from the requirement to conduct the inspection on site, the proposed rule required that the environmental professional document the good faith efforts undertaken to gain access to the property and explain why such efforts were unsuccessful. The proposed rule also required that the environmental professional document what other sources of information were consulted to obtain information regarding the potential environmental conditions at the property and the significance of the failure to conduct the inspection on site on his or her ability to identify conditions indicative of releases or threatened releases of hazardous substances on, at, in, or to the subject property.

In the preamble to the proposed rule, EPA recommended that an environmental professional conduct the on-site visual inspection.

Public Comments

A few commenters stated that EPA should not recommend, as we did in the preamble to the proposed rule, that an individual meeting the definition of environmental professional conduct the on-site visual inspection. These commenters stated that anyone under the responsible charge or supervision of an environmental professional should be able to conduct the on-site visual inspection. Commenters stated, that by recommending in the preamble that the environmental professional conduct the on-site visual inspection, the Agency was effectively requiring an environmental professional to conduct the visual inspection. Other commenters expressed support for the Agency's recommendation.

A few other commenters thought the proposed exception from the requirement to conduct the visual inspection on site was ''broad'' and ''would increase the likelihood of inspections not being performed and contamination not being detected.'' These commenters expressed a concern that any exception from the requirement to conduct an on-site visual inspection could open the door to abuse and result in properties being transferred without being inspected. Commenters raised concerns that owners of uninspected properties could obtain liability protection by claiming to have fulfilled the requirements of all appropriate inquiries without knowledge of on-going releases at a property.

Final Rule

The final rule, at § 312.27, retains the proposed requirement that a visual on-site inspection be conducted of the subject property. The final visual on-site inspection requirements include requirements to inspect the facilities and any improvements on the property, as well as visually inspect areas on the property where hazardous substances may currently be or in the past may have been used, stored, treated, handled, or disposed of. We continue to assert that, and commenters agreed, that every all appropriate inquiries investigation must include an on-site visual inspection of the property. The on-site inspection of a property most likely will be an excellent source of information regarding indications of environmental conditions on a property. The final rule requires that a visual on-site inspection of the subject property be conducted in all but a few very limited cases. In addition, the final rule retains the proposed requirement that in those cases where physical limitations restrict the portions of the property that may be visually inspected, that the physical limitations encountered during the visual on-site inspection (e.g., weather conditions, physical obstructions) must be documented.

We note that persons conducting all appropriate inquiries with monies provided in a grant awarded under CERCLA section 104(k)(2)(B) must, depending on the terms and conditions of the grant or cooperative agreement, include within the scope of the on-site visual inspection an inspection of the facilities, improvements, and other areas of the property where pollutants, contaminants, petroleum and petroleum products, or controlled substances may currently be or in the past may have been used, stored, treated, handled, or disposed.

The visual on-site inspection of a property during the conduct of all appropriate inquiries may be the most important aspect of the inquiries and the primary source of information regarding the environmental conditions on the property. In all cases, every effort must be made to conduct an on-site visual inspection of a property when conducting all appropriate inquiries.

We understand that a prospective landowner, grantee, or environmental professional, in some limited circumstances, may not be able to obtain on-site access to a property. Extreme and prolonged weather conditions and remote locations can impede access to a property. A prospective landowner, grantee or environmental professional also could be unable to gain on-site

access to a property if the owner refuses to provide access to the party, even after the party exercises all good faith efforts to gain access to the property (e.g., seeking assistance from state government officials). Such circumstances may arise in cases where a local government becomes a last resort purchaser of a potentially-contaminated property that has little economic value. The unique nature of such transactions may result in a local government facing an uncooperative or recalcitrant property owner. Unlike commercial property transactions between private parties, where the parties' economic and legal liability interests and the ability to abandon the transaction can work in favor of the purchasing party's ability to gain access to a property prior to acquisition, property transactions between a private party and a local government may not afford the local government the same leverage, even if it is in the public interest to attain ownership of the property. This situation may occur when the local government seeks to assess, clean up, and revitalize an area, but the owner of the property is unreachable, unavailable, or otherwise unwilling to provide access to the property. In such limited circumstances, the public benefit attained from a government entity gaining ownership of a property may outweigh the need to gain on-site access to the property prior to the transfer of ownership.

The final rule requires, in unusual circumstances, that the prospective landowner or grantee make good faith efforts to gain access to the property. However, the mere refusal of a property owner to allow the prospective property owner or grantee to have access to the property does *not* constitute an unusual circumstance, absent the making of good faith efforts to otherwise gain access. The final rule, at § 312.10, defines ''good faith'' as ''the absence of any intention to seek an unfair advantage or to defraud another party; an honest and sincere intention to fulfill one's obligations in the conduct or transaction concerned.''

In those unusual circumstances where a prospective landowner, a grantee, or an environmental professional, after undertaking good faith efforts, cannot gain access to a property and therefore cannot conduct an on-site visual inspection, the final rule requires that the property be visually inspected, or observed, by another method, such as through the use of aerial photography, or be inspected, or observed, from the nearest accessible vantage point, such as the property line or a public road that runs through or along the property. In addition, the rule requires that the all appropriate inquiries report include documentation of efforts undertaken by the prospective landowner, grantee, or the environmental professional to obtain on-site access to the subject property and include an explanation of why good faith efforts to gain access to subject property were unsuccessful. The all appropriate inquiries report must include documentation of other sources of information that were consulted to obtain information necessary to achieve the objectives and performance factors. This documentation should include comments, from the environmental professional who signs the report, regarding any significant limitations on the ability of the environmental professional to identify conditions indicative of releases or threatened releases on, at, in, or to the subject property, that may arise due to the inability of the prospective landowner, grantee, or environmental professional to obtain on-site access to the property.

In those limited cases where an on-site visual inspection cannot be conducted prior to the date a property is acquired, we remind prospective landowners that protection from CERCLA liability depends upon the prospective landowner complying with all of the post-acquisition continuing obligations provided in the statute. Therefore, to ensure that adequate information is attained about a property to ensure that the property owner can fulfill these obligations, we recommend that once a property is purchased, the property owner conduct an on-site visual inspection of the property once the property is acquired, if it could not be conducted prior to acquisition. Such an inspection may provide important information necessary for the property owner to fully comply with the other statutory provisions, including on-going obligations, governing the CERCLA liability protections.

We disagree with the commenters who argued that the exception from the requirement to conduct the visual inspection on-site is ''broad.'' We point out that the exception is limited to the requirement that the visual inspection be conducted on-site. In all cases where the exception applies, the visual inspection must still be conducted from another vantage point. In addition, the exception is limited to only those circumstances where all good faith efforts are made to gain access the property. The final rule requires that all good faith efforts to gain access be documented and requires that the environmental professional comment on the consequences that the inability to gain access to the property may have on his or her ability to render an opinion on property conditions that may be indicative of releases or threatened releases on, at, in, or to the property. The exception is very limited in scope and the documentation requirements should limit the use of the exception as well as provide the prospective landowner with useful information for determining the potential need for further investigations of the property after acquisition.

The final rule also requires that the all appropriate inquiries investigation include visual inspections of properties that adjoin the subject property. Visual inspections of adjoining properties may provide excellent information on the potential for the subject property to be affected by contamination migrating from adjoining properties. Visual inspections of adjoining properties may be conducted from the subject property's property line, one or more public rights-of-way, or other vantage point (e.g., via aerial photography). Where practicable, a visual on-site inspection is recommended and may provide greater specificity of information. The visual inspections of adjoining properties must include observing areas where hazardous substances currently may be, or previously may have been, stored, treated, handled, or disposed. Visual inspections of adjoining properties otherwise also must be conducted to achieve the objectives and performance goals for all the appropriate inquiries. Physical limitations to the visual inspections of adjoining properties should be noted.

As explained in the preamble to the proposed rule, EPA and the Negotiated Rulemaking Committee considered, when developing the proposed rule, requiring that all activities in the all appropriate inquiries investigation to be conducted by persons meeting the proposed definition of an environmental professional. Requiring that an environmental professional conduct all activities could ensure that all data collection and investigations are conducted in a manner and to a degree of specificity that allows the environmental professional to make best use of all information in forming opinions and conclusions regarding the environmental conditions at a property. However, after careful review of the specific activities included in the statutory criteria and conducting an assessment of the costs and burdens of such a requirement, EPA and the Committee concluded that it is not necessary for each and every regulatory requirement to be conducted by an environmental professional. As outlined

in section IV.H of this preamble, today's final rule, as did the proposed rule, allows for certain aspects of the inquiries to be conducted solely by the prospective landowner or grantee, while providing that all other aspects be conducted under the supervision or responsible charge of the environmental professional. Among the activities required to be conducted under the supervision or responsible charge of an environmental professional is the on-site visual inspection.

It continues to be EPA's recommendation that visual inspections of the subject property and adjoining properties be conducted by an individual who meets the regulatory definition of an environmental professional. Although many other aspects of the all appropriate inquiries may be conducted sufficiently and accurately by individuals other than an environmental professional (e.g., a research associate or librarian may be well qualified to search government records, an attorney may be well qualified to conduct a search for an environmental lien), EPA believes that an environmental professional is best qualified to conduct a visual inspection and locate and interpret information regarding the physical and geological characteristics of the property as well as information on the location and condition of equipment and other resources located on the property. EPA recognizes that other individuals who do not meet the regulatory definition of an environmental professional, particularly when these individuals are conducting such activities under the supervision or responsible charge of an environmental professional, may have the required skills and knowledge to conduct an adequate on-site visual inspection. However, EPA believes that the professional judgment of an individual meeting the definition of an environmental professional is important to ensuring that all circumstances at the property that are indicative of environmental conditions and potential releases or threatened releases are properly identified and analyzed. An environmental professional is best qualified for identifying such situations and conditions and rendering a judgment or opinion regarding the potential existence of conditions indicative of environmental concerns.

Although some commenters stated that EPA should not recommend that the visual inspection be conducted by a person meeting the definition of environmental professional, we point out that other commenters stated their support for our recommendation and some even stated that EPA should require in the regulation that the inspection be conducted by an environmental professional. We remain convinced that the on-site visual inspection of the property can be the single most important source of information regarding the environmental conditions of a property and that an individual meeting the regulatory definition of environmental professional is best able to interpret such observations of a property and ascertain the probability of conditions indicative of releases or threatened releases of hazardous substances being present at the property. In addition, we point out that the definition of environmental professional included in the final rule is less stringent than the proposed definition. Therefore, commenter concerns regarding any significant cost burdens associated with the environmental professional conducting the on-site visual inspection may be alleviated. We emphasize that EPA is recommending that the on-site visual inspection be conducted by an individual who meets the definition of environmental professional included in the final rule; it is not a requirement that the inspection be conducted by an environmental professional. The rule requires only that the inspection be conducted by an individual who is under the supervision or responsible charge of an individual meeting the definition of environmental professional. EPA agrees that if the final rule required that the on-site visual inspection be conducted by an individual meeting the definition of an environmental professional, the requirement could impose undue burdens in certain circumstances. In addition, there may be circumstances that in the best professional judgment of an environmental professional, another person under the responsible charge of the environmental professional may be more qualified to conduct the on-site inspection. To allow for flexibility and the application of professional judgment to specific circumstances, EPA continues to recommend that an environmental professional conduct the on-site inspection, but the Agency is not requiring that the inspection be conducted by an environmental professional.

U. What Are the Requirements for the Inclusion of Specialized Knowledge or Experience on the Part of the ''Defendant?''

Because the conduct of all appropriate inquiries is one element of a legal defense to CERCLA liability, the statute refers to the prospective landowner, or the user of the all appropriate inquiries investigation, as the ''defendant.'' This ensures that any information or special knowledge held by the prospective landowner with regard to a property and its conditions be included in the pre-acquisition inquiries and be considered, along with all information collected during the conduct of all appropriate inquiries, when an environmental professional renders a judgment or opinion regarding conditions indicative of environmental conditions indicative of releases or potential releases of hazardous substances on, at, in, or to the subject property. It is recommended that this information be revealed to the parties conducting the all appropriate inquiries so that any specialized knowledge may be taken into account during the conduct of the required aspects of the all appropriate inquiries.

Congress first added the innocent landowner defense to CERCLA in the Superfund Amendments and Reauthorization Act (SARA) of 1986. The Brownfields Amendments amended the innocent landowner defense and added to CERCLA the bona fide prospective purchaser and the contiguous property owner liability protections to CERCLA liability. The 1986 SARA amendments to CERCLA established that among other elements necessary for a defendant to successfully assert the innocent landowner defense, a defendant must demonstrate that he or she had, on or before the date of acquisition of the property in question, made all appropriate inquiries into previous ownership and uses of the property. Congress directed courts evaluating a defendant's showing of all appropriate inquiries to take into account, among other things, ''any specialized knowledge or experience on the part of the defendant.'' Nothing in today's rule changes the nature or intent of this requirement as it has existed in the statute since 1986.

Proposed Rule

The proposed rule retained, as part of the federal all appropriate inquiries requirements, the consideration of any specialized knowledge or experience of the prospective landowner (or grantee if the grantee is or will be the property owner). The proposed rule did not extend this requirement beyond what already was required under CERCLA and established through case law. The proposed rule required that all appropriate inquiries include the consideration of specialized knowledge held by the prospective landowner or grantee with regard to the subject property, the area surrounding the subject property, the conditions of

adjoining properties, as well as other experience relative to the inquiries that may be applicable to identifying conditions indicative of releases or threatened releases at the subject property. The proposed rule also required that the results of the inquiries take into account any specialized knowledge related to the property, surrounding areas, and adjoining properties held by the persons responsible for undertaking the inquiries, including any specialized knowledge on the part of the environmental professional.

Public Comments

EPA did not receive significant comment on the proposed requirements for considering the specialized knowledge or experience on the part of the defendant. A few commenters mentioned that the proposed requirements would result in the all appropriate inquiries investigations having to include interviews with all previous owners and occupants of the property. These commenters may have mistakenly interpreted the proposed provisions as requiring that the specialized knowledge of all current owners and occupants be considered as part of the all appropriate inquiries investigation. We clarify that only the specialized knowledge of the prospective landowner or grantee, and the environmental professional overseeing the conduct of the inquiries need be considered.

Final Rule

The final rule retains the proposed provisions governing the consideration of specialized knowledge or experience on the part of the prospective landowner (or grantee) and the environmental professional conducting the all appropriate inquiries investigation on the part of the prospective landowner or grantee.

As provided in the preamble to the proposed rule, existing case law related to the innocent landowner defense shows that courts appear to have interpreted the ''specialized knowledge'' factor to mean that the professional or personal experience of the defendant may be taken into account when analyzing whether the defendant made all appropriate inquiries. For example, in *Foster* v. *United States*, 922 F. Supp. 642 (D. D.C. 1996), the owner of a property formerly owned by the General Services Administration and contaminated by, among other things, lead, mercury and PCBs, brought an action against the United States and District of Columbia, prior owners or operators of the site. The plaintiff was a principal in Long & Foster companies and purchased the property through a general partnership, and received it by quitclaim deed. The innocent landowner defense requires a property owner to demonstrate that when he or she purchased a property, he or she did not know and had no reason to know of contamination at, on, in, or to the property. The court rejected the plaintiff's claim to the innocent landowner defense based in part on the plaintiff's specialized knowledge. The court found that his specialized knowledge included his position at Long & Foster, which did hundreds of millions of dollars of commercial real estate transactions, and his position as a partner in at least 15 commercial real estate partnerships. The partnership was involved as an investor in a number of real estate transactions, some of which involved industrial or commercial or mixed-use property. The court ruled that ''it cannot be said that [the partnership] is a group unknowledgeable or inexperienced in commercial real estate transactions.'' *Foster*, 922 F. Supp. at 656.

In *American National Bank and Trust Co. of Chicago* v. *Harcros Chemicals, Inc.*, 1997 WL 281295 (N.D. Ill. 1997), the plaintiff was a company ''involved in brownfields development, purchasing environmentally distressed properties at a discount, cleaning them up, and selling them for a profit.'' *American National Bank*,1997 WL 281295 at *4. As a counter-claim defendant, the company asserted it was an innocent landowner and therefore not liable pursuant to CERCLA. The court found that among other reasons the defense failed because the company possessed specialized knowledge. The court ruled that the company was an expert environmental firm and possessed knowledge that should have alerted it to the potential problems at the site.

The final rule requires that the specialized knowledge of prospective landowners and the persons responsible for undertaking the all appropriate inquiries, including grantees, be taken into account when conducting the all appropriate inquiries for the purposes of identifying conditions indicative of releases or threatened releases at a property. However, as evidenced by the case law cited above, the determination of whether or not the all appropriate inquiries standard is met with regard to specialized knowledge (as well as in regard to all the criteria) remains within the discretion of the courts.

V. What Are the Requirements for the Relationship of the Purchase Price to the Value of the Property, if the Property Was Not Contaminated?

Congress included in the statutory criteria for all appropriate inquiries a requirement to consider the relationship of the purchase price of a property to the value of the property, if the property was not contaminated. The criteria was retained in the criteria included in the Brownfields Amendments from the all appropriate inquiries provisions of the innocent landowner defense established by Congress in the 1986 amendments to CERCLA.

Proposed Rule

The proposed rule required that the prospective landowner or grantee consider whether or not the purchase price of the property reflects the fair market value of the property, assuming that the property is not contaminated. The proposed rule required that the prospective landowner or grantee consider whether any differential between the purchase price and the value of the property is due to the presence of releases or threatened releases of hazardous substances at the property. There may be many reasons that the price paid for a particular property is not an accurate reflection of the fair market value. The all appropriate inquiries investigation need only include a consideration of whether a significant difference between the price paid for a property and the fair market value of a property, if the property were not contaminated, is an indication that the property may be contaminated.

Public Comments

Many commenters asserted that an environmental professional should not be required to consider the relationship of the purchase price to the value of the property as part of the all appropriate inquiries investigation. Concerns raised by commenters include whether environmental professionals are qualified to assess the fair market value of a property. Some commenters thought that a requirement that prospective landowners or environmental professionals consider the relationship of the purchase price of property to the value of the property could violate federal or state laws governing property appraisals. Some commenters argued that the all appropriate inquiries investigation should not include the requirement to consider the relationship of the purchase price to the value of the property because the fair market value

is not always easily ascertainable. Other commenters requested that the preamble to the final rule include a recommendation that an appraisal be performed to determine a property's fair market value. In addition, commenters requested that in cases where an appraisal is conducted to determine the fair market value of a property, the rule should require that it meet the Uniform Standards of Professional Appraisal Practice. Still other commenters supported including the requirement in the final rule, but asked the Agency to require prospective landowners to obtain a property appraisal conducted by a trained or certified real estate appraiser. Some commenters stated that prospective landowners should not be required to divulge information on the price paid for a property to the environmental professional or other third party.

Final Rule

The final rule retains the requirement to consider the relationship of the purchase price to the fair market value of the property, if the property were not contaminated. The requirement is part of the statutory criteria established by Congress and has been part of the statutory provisions governing all appropriate inquiries, within the innocent landowner defense, since 1986. Today's rule does not change the previously existing provision. As did the proposed rule, today's final rule allows for this criterion to be conducted by the prospective landowner or the grantee or undertaken as part of the inquiry by an environmental professional. If an environmental professional is not qualified to consider the relationship of the purchase price to the value of the property, the prospective landowner or grantee may undertake the task or hire another third party to make the comparison of price and fair market value and consider whether any differential is due to potential environmental contamination.

If the relationship of the purchase price to the fair market value of the property, assuming the property is not contaminated, is determined by the prospective landowner or grantee, or other agent who is not under the supervision or responsible charge of the environmental professional, the final rule allows for, but does not require, the information that is collected and the determination made by or on the behalf of the prospective landowner to be provided to the environmental professional. If the information is provided to the environmental professional, he or she can then make use of such information during the conduct of the all appropriate inquiries and when rendering conclusions or opinions regarding the environmental conditions of the property. If the information is not provided to the environmental professional and the environmental professional determines that the lack of such information affects his or her ability to identify conditions indicative of releases or threatened releases of hazardous substances on, at, in, or to the property, then the environmental professional should identify the lack of information as a data gap and comment on its significance in the written report for the all appropriate inquiries investigation.

The rule does not require that a real estate appraisal be conducted to achieve compliance with this criterion. Although some commenters requested that the final rule require that a formal appraisal be conducted and we acknowledge that there may be potential value in conducting an appraisal, we determined that a formal appraisal is not necessary for the prospective landowner or grantee to make a general determination of whether the price paid for a property reflects its fair market value. In the case of many property transactions, a formal appraisal may be conducted for other purposes (*e.g.*, to establish the value of the property for the purposes of establishing the conditions of a mortgage or to provide information of relevance where a windfall lien may be filed). In cases where the results of a formal property appraisal are available, the appraisal results may serve as an excellent source of information on the fair market value of the property.

In cases where the results of a formal appraisal are not available, the determination of fair market value may be made by comparing the price paid for a particular property to prices paid for similar properties located in the same vicinity as the subject property, or by consulting a real estate expert familiar with properties in the general locality and who may be able to provide a comparability analysis. The objective is not to ascertain the exact value of the property, but to determine whether or not the purchase price paid for the property generally is reflective of its fair market value. Significant differences in the purchase price and fair market value of a property should be noted and the reasons for any differences also should be noted.

Although some commenters requested that EPA be more explicit in the final rule in requiring that the comparison of the purchase price to the fair market value of the property be conducted by the prospective landowner or grantee (and not the environmental professional), we believe that the decision of who conducts the comparison may be best left up to the judgment of the individual prospective landowner (or grantee) and environmental professional. The final rule provides in § 312.22 that the comparison of the purchase price to the fair market value of the property, if it were not contaminated, can fall outside the inquiries conducted by the environmental professional. The criteria to consider the relationship of the purchase price to the fair market value of the property, if it was not contaminated is not included as part of the requirements governing the ''results of an inquiry by an environmental professional'' (§ 312.21). Therefore, the requirement may be conducted by the prospective landowner or grantee, his or her attorney or agent, or the environmental professional. Given that a prospective landowner or grantee can conduct the comparison of the purchase price and the fair market value of the property or hire another agent other than the environmental professional to conduct this task, we conclude that commenter concerns regarding the prospective landowner (or grantee) having to divulge the price paid for a property to the environmental professional are unfounded.

W. What Are the Requirements for Commonly Known or Reasonably Ascertainable Information About the Property?

Commonly known or reasonably ascertainable information includes information about a property that generally is known to the public within the community where the property is located and can be easily sought and found from individuals familiar with the property or from easily attainable public sources of information. As mentioned above, the Brownfields Amendments to CERCLA amended the innocent landowner defense previously added to CERCLA in 1986. In addition, the Brownfields Amendments added to CERCLA the bona fide prospective purchaser and the contiguous property owner liability protections. The 1986 amendments to CERCLA established, that among other elements necessary for a defendant to successfully assert the innocent landowner defense, a defendant must take into account commonly known or reasonably ascertainable information about the property. Congress retained this criterion as part of the all appropriate inquiries requirements included in the Brownfields Amendments. Today's rule does not change the nature or intent of

this requirement as it has existed in the statute since 1986.

Proposed Rule

The proposed rule required that all appropriate inquiries include the collection and consideration of commonly known information about the potential environmental conditions at a property. The proposed rule required both the prospective landowner or grantee and the environmental professional obtain and consider commonly known or reasonably ascertainable information during the conduct of the all appropriate inquiries investigation. The proposed rule also provided a list of potential sources of such information.

Public Comments

A few commenters expressed concern that the requirement to consider commonly known or reasonably ascertainable information about a property renders the all appropriate inquiries requirements too vague and open-ended. Commenters stated that the requirement is broad and may result in the need to interview a large number of people and consult a wide variety of sources of information. One commenter expressed a preference that the federal standards include only a checklist of specific sources of information that must be consulted. A few commenters thought the list of potential sources of commonly known information included in the proposed rule was too broad.

Final Rule

The final rule retains the proposed provisions requiring that prospective landowners and environmental professionals consider commonly known or reasonably ascertainable information about a property when conducting all appropriate inquiries. This information may be ascertained from the owner or occupant of a property, members of the local community, including owners or occupants of neighboring properties to the subject property, local or state government officials, local media sources, and local libraries and historical societies. In many cases, this information may be incidental to other information collected during the inquiries, and separate or distinct efforts to collect the information may not be necessary. Information about a property, including its ownership and uses, that is commonly known or reasonably ascertainable within the community or neighborhood in which a property is located may be valuable to identifying conditions indicative of releases or threatened releases at the subject property. Such information, if not collected during the course of collecting other information necessary to complete the all appropriate inquiries investigation, may be obtained by interviewing community officials and other residents of the locality. For example, neighboring property owners and local community members may have information regarding undocumented uses of a property during periods when the property was idle or abandoned. Local community sources may be good (i.e., reasonably ascertainable) sources of commonly known information on uses of a property and activities conducted at a property, particularly in the case of abandoned properties.

The collection and use of commonly known information about a property may be done in connection with the collection of all other required information for the purposes of achieving the objectives and performance factors contained in § 312.20. Persons undertaking the all appropriate inquiries may collect commonly known or reasonably ascertainable information on the subject property from a variety of sources, including sources located in the community in which the property is located. The opinion provided by an environmental professional regarding the environmental conditions of a property and included in the all appropriate inquiries report should be based upon a balance of all information collected, including commonly known or reasonably ascertainable information about the property. The potential sources of commonly known or reasonably ascertainable information provided in the proposed rule and retained in the final rule are provided as suggestions for where such information may be found and the list provided is not meant as an exhaustive list of sources that must be consulted. Commonly known information may be collected from other sources and may be most easily collected during the conduct of other aspects of the all appropriate inquiries investigation (*e.g.*, interviews, reviews of historical sources of information, reviews of governmental records). The requirement is not meant to require exhaustive data collection efforts, as some commenters asserted. The intent of the requirement is to establish that a prospective landowner or grantee and an environmental professional conducting all appropriate inquiries on his or her behalf must make efforts to collect and consider information about a property that is commonly known within the local community or that can be reasonably ascertained.

There is some case law, related to the innocent landowner defense, that provides guidance on how a court may rule with regard to the need to consider commonly known or reasonably ascertainable information about the property. For example, in *Wickland Oil Terminals* v. *Asarco, Inc.*, 1988 WL 167247 (N.D. Cal. 1988), the court noted that Wickland was aware of potential water quality problems at the subject property due to large piles of mining slag stored at the property, even though Wickland argued that previous owners withheld such information, because the information was available from other sources consulted by Wickland prior to purchasing the property, including the Regional Water Quality Control Board and a consulting firm hired by Wickland. Such information was commonly known by local sources and therefore should have been considered by Wickland during its conduct of all appropriate inquiries.

In *Hemingway Transport Inc.* v. *Kahn*, 174 FR 148 (Bankr. D. Mass. 1994), the court ruled against an innocent landowner claim because it found ''that had [the defendants] exerted a modicum of effort they may easily have discovered information that at a minimum would have compelled them to inspect the property further * * * the [defendants] could have taken a few significant steps, literally, to minimize their liability and discover information about the property * * *'' The court noted that one action the defendants should have taken to collect available information about the property included phone calls to city officials to inquire about conditions at the property.

X. What Are the Requirements for ''The Degree of Obviousness of the Presence or Likely Presence of Contamination at the Property, and the Ability to Detect the Contamination by Appropriate Investigation?''

Proposed Rule

The proposed rule required that the inquiries conducted by a prospective landowner (or grantee) and environmental professional take into account all the information collected during the conduct of the all appropriate inquiries in considering the degree of obviousness of and ability to detect the presence of a release or threatened release of hazardous substances at, in, on, or to a property. In addition, the proposed rule required the environmental professional to provide an opinion regarding additional appropriate investigation, if any may be

necessary in his or her opinion to determine the environmental conditions of the property.

Public Comments

A few commenters asserted that the proposed requirements regarding the degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate inquiry were too open-ended. Also, a few commenters suggested that the final rule should include requirements to conduct sampling and analysis to meet the ''ability to detect contamination by appropriate investigation'' portion of the statutory criteria. However, commenters overwhelmingly agreed that the standards for all appropriate inquiries should not require sampling and analysis.

Final Rule

The final rule requires that persons conducting all appropriate inquiries consider all the information collected during the conduct of the inquiries in totality to ascertain the potential presence of a release or threatened release at the property. Persons conducting all appropriate inquiries, following the collection of all required information, must assess whether or not an obvious conclusion may be drawn that there are conditions indicative of a release or threatened release of hazardous substances (or other pollutants, contaminants, petroleum or petroleum products, and controlled substances) on, at, in, or to the property. In addition, the rule requires parties to consider whether or not the totality of information collected prior to acquiring the property indicates that the parties should be able to detect a release or threatened release on, at, in, or to the property. The final rule also retains the proposed requirement that the environmental professional include as part of the results of his or her inquiry an opinion regarding additional appropriate investigation, if any may be necessary.

We interpret the statutory criterion to require consideration of information already obtained during the conduct of all appropriate inquiries investigation and not as a requirement to collect additional information. We do not agree with commenters who asserted that the criterion is open-ended. In fact, we see this criterion as providing direction on how all of the information collected while carrying out the other criteria and regulatory requirements must be viewed comprehensively. After collecting and considering all the information required to comply with the rule's objectives and performance standards, all the information should be considered in total to determine whether or not there are indications of releases or threatened releases of hazardous substances on, at, in, or to the property. In addition, the environmental professional should provide an opinion regarding whether or not additional investigation is necessary to detect potential contamination at the site, if in his or her opinion there are conditions indicative of releases or threatened releases of hazardous substances.

The previous innocent landowner defense (added to CERCLA in 1986) required a court to consider the degree of obviousness of the presence or likely presence of contamination at a property, and the ability of the defendant (i.e., the landowner) to detect the contamination by appropriate investigation. Nothing in today's rule changes the nature or intent of this requirement as it has existed in the statute since 1986.

Case law relevant to this criterion indicates that defendants may not be able to claim an innocent landowner defense if a preponderance of evidence available to a prospective landowner prior to acquiring the property indicates that the defendant should have concluded that there is a high likelihood of contamination at the site. In some cases (e.g., *Hemingway Transport Inc.* v. *Kahn*, 174 F.R. 148 (Bankr. D. Mass. 1994), and *Foster* v. *United States*, 922 F. Supp. 642 (D.D.C. 1996), courts have ruled that if a defendant had done a bit more visual inspection or further investigation, based upon information available to the defendant prior to acquiring the property, it would have been obvious that the property was contaminated. In *Foster* v. *United States*, the court determined that the innocent landowner defense was not available based in part on the fact that the partnership presumed the site was free of contamination based upon cursory visual inspections despite evidence in the record that, at the time of the sale, the soil was visibly stained by PCB-contaminated oil. In addition, although the property was located in a run-down industrial area, the defendant did no investigation into the environmental conditions at the site prior to acquiring the property.

EPA also notes that in *U.S.* v. *Domenic Lombardi Realty, Inc.,* 290 F. Supp. 2d 198, 211 (D.R.I. 2003), the court held that the defendant did not qualify for the innocent landowner defense. The defendant could not show he had ''no reason to know'' of contamination at the property or that he had performed all appropriate inquiries in accordance with ''good commercial or customary practices.'' The court also found that the defendant had not performed even a minimal environmental assessment of the site despite having learned that the property had been used as an automobile scrapyard. The court noted the distinction between Phase I and Phase II environmental assessments and credited the testimony of the United States' expert who concluded that, under the circumstances of this case, the defendant should have conducted a Phase II assessment. *Id.* at 203–04.

With regard to the conduct of sampling and analysis, today's final rule does not require sampling and analysis as part of the all appropriate inquiries investigation. However, sampling and analysis may be valuable in determining the possible presence and extent of potential contamination at a property. In addition, the fact that the all appropriate inquiry standards do not require sampling and analysis does not prevent a court from concluding that, under the circumstances of a particular case, sampling and analysis should have been conducted to meet ''the degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation'' criterion and obtain protection from CERCLA liability. Prospective landowners should keep in mind that the conduct of all appropriate inquiries prior to acquiring a property is only one requirement that he or she must comply with to assert protection from CERCLA liability. The statute requires that persons, after acquiring a property, comply with continuing obligations to take reasonable steps to stop on-going releases at the property, prevent any threatened future releases, and prevent or limit any human, environmental, or natural resource exposure to any previously released hazardous substances (these criteria are summarized in detail in section II.D. of this preamble). In certain instances, depending upon site-specific circumstances and the totality of the information collected during the all appropriate inquiries prior to the property acquisition, it may be necessary to conduct sampling and analysis, either pre-or post-acquisition, to fully understand the conditions at a property, and fully comply with the statutory requirements for the CERCLA liability protections. In addition, sampling and analysis may help explain existing data gaps. Prospective landowners should be mindful of all the statutory requirements for obtaining the CERCLA liability protections when

considering whether or not to conduct sampling and analysis prior to or after acquiring a property. Today's final regulation does *not* require that sampling and analysis be conducted as part of the all appropriate inquiries investigation.

V. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735), the Agency must determine whether this regulatory action is ''significant'' and therefore subject to formal review by the Office of Management and Budget (OMB) and to the requirements of the Executive Order. The Executive Order defines ''significant regulatory action'' as one that is likely to result in a rule that may: (1) Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Pursuant to the terms of Executive Order 12866, it has been determined that today's final rule is a ''significant regulatory action'' because this rule contains novel policy issues, although it is not economically significant. As such, this action was submitted to OMB for review. Changes made in response to OMB suggestions or recommendations are documented in the docket for today's rule.

To estimate the economic effects of today's final rule, we conducted an evaluation of the potential effects of this rule on the universe of prospective landowners who may chose to comply with the provisions of today's final rule to obtain protection from CERCLA liability for potential releases and threatened releases of hazardous substances that may exist at properties they intend to purchase. The results of this analysis are included in the document titled ''Economic Impact Analysis for the Final All Appropriate Inquiries Regulation,'' which is included in the docket for today's final rule. Based upon the results of the Economic Impact Analysis (EIA), EPA has determined that this final rule will have an annual effect on the economy of less than $100 million. The annualized benefits associated with the final rule have not been monetized but are identified and summarized in the EIA for the all appropriate inquiries rule.[2]

1. Methodology

The value of any regulatory action is traditionally measured by the net change in social welfare that it generates. The EIA conducted in support of today's rule examines both costs and qualitative benefits in an effort to assess the overall net change in social welfare. The primary focus of the EIA document is on compliance costs and economic impacts. Below, EPA summarizes the analytical methodology and findings for the all appropriate inquiries rule. The information presented is derived from the EIA.

The all appropriate inquiries regulation potentially will apply to most commercial property transactions. The requirements will be applicable to any public or private party, who may potentially claim protection from CERCLA liability as an innocent landowner, a bona fide prospective purchaser, or a contiguous property owner. However, the conduct of all appropriate inquiries, also known as environmental due diligence or Phase I Environmental Site Assessment, is not new to the commercial property market. Prior to the Brownfields Amendments to CERCLA, commercial property transactions often included an assessment of the environmental conditions at properties prior to the closing of any real estate transaction whereby ownership was transferred for the purposes of confirming the conditions at the property or to establish an innocent landowner defense should environmental contamination be discovered after the property was acquired. The process most prevalently used for conducting all appropriate inquiries, or environmental site assessments, is the process developed by ASTM International (formerly known as the American Society for Testing and Materials) and entitled ''E1527, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.'' In addition, some properties, particularly in cases where the subject property is assumed not to be contaminated or was never used for industrial or commercial purposes, were assessed using a less rigorous process developed by ASTM International, sometimes referred to as a ''transaction screen'' and entitled ''E1528, Standard Practice for Environmental Site Assessments: Transaction Screen Process.''

Our first step in assessing the economic impacts of the rule was to establish a baseline to represent the relevant aspects to the commercial real estate market in the absence of any changes in regulations. Because under existing conditions almost all commercial property transactions are accompanied by either an environmental site assessment (ESA) conducted in accordance with ASTM E1527–2000 or a transaction screen as specified in ASTM E1528, it was assumed these practices would continue even in the absence of the all appropriate inquiries regulation. The numbers of each type of assessment were estimated on the basis of industry data for recent years, with recent growth rates in transactions assumed to continue for the 10-year period covered by the EIA. An adjustment in the relative numbers of ESAs and transaction screens was made to account for the fact that, under the rule, an ESA will provide more certain protection from liability. This adjustment was made by comparing shifts between the two procedures that occurred when the Brownfields Amendments established the ASTM E1527–2000 standard as the interim standard for all appropriate inquiries, and thus as one requirement for qualifying as an innocent landowner, bona fide prospective purchaser, or contiguous property owner.

We then considered the requirements included in the final rule and compared them to the requirements for environmental site assessments conducted under the ASTM E1527–2000 and ASTM E1528 standards.

When compared to the ASTM E1527–2000 standard (i.e., the baseline standard), today's final rule is expected to result in a reduced burden for the conduct of interviews in those cases where the subject property is abandoned; increased burden in those cases where past owners or occupants need to be interviewed; increased burden associated with documenting recorded environmental cleanup liens; increased burden for documenting the reasons for the price and fair market value of a property in those cases where the purchase price paid for the subject property is significantly below the fair

[2] The document titled ''The Economic Impact Analysis for the Final All Appropriate Inquiries Regulation'' includes (1) the EIA conducted for the proposed rulemaking and (2) the Addendum to the EIA. The cost estimates presented in the Addendum are the estimated costs of the final all appropriate inquiries regulation.

market value of the property; and increased burden for recording information about the degree of obviousness of contamination at a property.

To estimate the changes in costs resulting from the rule, we developed a costing model. This model estimates the total costs of conducting site assessments as the product of costs per assessment, numbers of assessments per year, and the number of years in the analysis. The costs per assessment, in turn, are calculated by dividing each assessment into individual labor activities, estimating the labor time associated with each, and assigning a per-hour labor cost to each activity on the basis of the labor category most appropriate to that activity. Labor times and categories are assumed to depend on the size and type of property being assessed, with the nationwide distribution of properties based on data from industry on environmental sites assessments and brownfield sites.[3] The estimates and assignments of categories are made based on the experience of professionals who have been involved in large numbers of site assessments, and who are therefore skilled in cost estimation for the relevant activities. Other costs, such as reproduction and the purchase of data, are added to the labor costs to form the estimates of total costs per assessment. These total costs, stratified by size and type of property, are then multiplied by estimated numbers of assessments of each size and type to generate our estimates of total annual costs. The model was tested by comparing its results to industry-wide estimates of average price of conducting assessments under baseline conditions, and generally found to agree. The difference between the estimated cost to comply with the final rule and the estimated cost in the baseline constitutes our estimate of the incremental regulatory costs.

The EIA provides a qualitative assessment of the benefits of the all appropriate inquiries rule. The benefits discussed are those that may be attributed to an increased level of certainty with regard to CERCLA liability provided to prospective purchasers of potentially contaminated properties, including brownfields, who comply with the provisions of the rule and the other statutory provisions associated with the liability protections. The basic premise for associating certain benefits to the rule is the expectation that the level of certainty provided by the liability protections may result in increased brownfields property transactions. However, it is difficult to predict how many additional transactions may occur that involve brownfields properties in direct response to the increased certainty of the liability protections. It also is difficult to obtain data on changes in behaviors and practices of prospective landowners in response to the liability protections. Therefore, EPA made no attempt to quantify potential benefits or compare the benefits to estimated incremental costs.

The Agency believes that increasing property transactions involving brownfields and other contaminated and potentially contaminated properties and improving information about environmental conditions at these properties may provide additional indirect benefits such as increased numbers of cleanups, reduced use of greenfields, potential increases in property values, and potential increases in quality of life measures (*e.g.*, decreases in urban blight, reductions in traffic, congestion, and reduced pollution due to mobile source emissions). However, as stated above, the benefits of the rule are considered only qualitatively, due to the difficulty of predicting how many additional brownfields and contaminated property transactions may occur in response to the increased certainty of liability protections provided by the rule, as well as the difficulty in getting data on changes in behaviors and practices in response to the availability of the liability protections. EPA is confident that the new liability protections afforded to prospective landowners, if they comply with the all appropriate inquiries provisions, will result in increased benefits. EPA is not able to quantify, with any significant level of confidence, the exact proportion of the benefits attributed only to the availability of the liability protections and the all appropriate inquiries regulations. For these reasons, the costs and benefits could not be directly compared.

2. Summary of Regulatory Costs in Proposed Rule

For a given property, the costs of compliance with the all appropriate inquiries rule relative to the baseline depend on whether that property would have been assessed, in absence of the all appropriate inquiries regulation, with an ASTM E1527–2000 assessment process or with the simpler ASTM E1528 transaction screen. EPA estimated the average incremental cost of the proposed rule relative to conducting an ASTM E1527–2000 to be between $41 and $47. For the small percentage of cases for which a transaction screen would have been preferred to the ASTM E1527–2000 in the baseline, but which would, as a result of the proposed rule, require an assessment in compliance with the all appropriate inquiries rule, the average incremental cost was estimated to be between $1,448 and $1,454. We estimated that approximately 97 percent of property transactions will bear only the incremental cost of the rule relative to the ASTM E1527–2000 process. Therefore, the weighted average incremental cost of the proposed rule, per transaction, was estimated to be fairly low, between $84 and $89.

3. Public Comments on EIA for Proposed Rule

EPA received a number of public comments on the EIA conducted to assess the potential costs and impacts of the proposed rule. We summarized the public comments received related to the cost and economic impacts in the document titled ''Addendum to Economic Impact Analysis for the Final All Appropriate Inquiries Regulation'' (Addendum to the EIA). This document is included in the docket for today's final rule. The Addendum to the EIA also summarizes EPA's responses to the comments received that addressed the estimated costs and economic impacts.

Many commenters generally agreed with EPA's conclusion that the average incremental cost increase per transaction associated with the requirements of the proposed rule would be minimal. Some commenters mentioned that the EIA conducted for the proposed rule underestimated the incremental costs associated with the proposed rule. However, only a few commenters provided an explanation as to why they thought our cost estimates were low or provided information regarding which particular activities would result in an incremental increase in the activities and costs associated with conducting an environmental site assessment, if conducted in compliance with the requirements of the proposed rule. Most commenters did not provide specific reasons for their claims of cost increases over the ASTM E1527–2000 standard. A few commenters suggested that the EIA for the proposed rule underestimated the level of effort necessary for locating and interviewing past owners or occupants, with one commenter providing an estimated level of effort of one to three hours for this task.

[3] The distribution of abandoned properties and properties with known owners, modeled as a range, is based on an estimate of vacant lands in urban areas and an estimate of abandoned Superfund sites.

4. Estimate of Costs Associated With the Final Rule

EPA made one revision to the analysis of cost impacts associated with the requirements of the proposed and final rule in response to specific issues raised by commenters. EPA agrees with the commenters who asserted that locating past owners or occupants of a property may be more time consuming than locating the current owners or occupants, as was assumed in the analysis of costs conducted for the proposed rule. Locating past owners or occupants could require as little as one 5-minute phone call (e.g., if the current owner has the contact information for the past owner) or it could require multiple phone calls that could take in excess of one hour. For the purpose of estimating the cost under the final rule, EPA estimates the incremental burden for locating past owners or occupants to be, on average, 0.5 hours per interview regardless of the property type or size. EPA did not account for this incremental burden in our analysis of the costs associated with the proposed rule. EPA also recognizes that in some cases the environmental professional will need to complete the full interview with the current owner before determining that it is necessary to interview a past owner. In other words, the environmental professional may need to complete the interview with the current owner, and then perform a more focused interview of a past owner to fill data gaps. EPA estimates that the incremental burden for interviewing past owners or occupants will be 0.5 hours for undeveloped and residential properties, one hour for commercial and industrial properties (of all sizes except large industrial), and 1.5 hours for large industrial properties. Therefore, EPA estimates that the total incremental level of effort for locating and interviewing past property owners or occupants will range from one hour to two hours depending on the property type or size.

The additional incremental hour burden, however, will not be incurred in the case of every site assessment. EPA expects that the interview with past owners or occupants will be conducted only for properties with a higher than average owner or occupant turnover rate. To derive the number of potentially affected properties, we assume that the environmental professional will interview only the current property owner if the owner was in the possession of the subject property for more than two years. We assume that after two years of owning a property, the current property owner should have a reasonably good knowledge of its condition. EPA estimates that 19 percent of Phase I ESAs conducted in a given year are conducted on properties that were sold at least once in the previous two years (for a detailed explanation on the derivation of this estimate, see the Addendum to the EIA). Using the assumption that 15 percent of all properties are abandoned properties (see Section 5.6.5.2 of EIA) which would not be affected by the requirement to interview past owners or occupants, we revised our original cost estimate to account for non-abandoned properties that were sold over the past two years. Therefore, for the purpose of our revised cost analysis, we estimate that 16 percent of properties will require an additional interview with past owners or occupants.

Except for the increase in the level of effort for the interview task for non-abandoned properties, all other parameters used in modeling our cost estimates are the same as presented in the EIA conducted for the proposed rule. To derive the incremental average cost per transaction and the total annual cost of the final rule, we employed the methodology explained in detailed in Chapters 7 and 8 of the EIA conducted for the proposed rule. Based on our analysis, the cost of a Phase I ESA under the final regulation will increase, on average, between $52 and $58. The estimated average cost for a Phase I ESA thus will range between $2,185 and $2,190.[4]

Using our revised incremental cost estimate for conducting interviews of past owners or occupants, we revised our estimated total annual cost of the final rule and our incremental total annual cost estimate. Our revised total annual cost estimate for all activities included in the all appropriate inquiries investigations conducted under the final rule is between $693.5 and $695.3 million (calculated using a discount rate of three percent). Our revised estimate of the incremental total annual cost of the final rule is between $29.7 million and $31.4 million. A more detailed explanation of our revised cost estimates, including an additional sensitivity analysis performed in response to the public comments, is included in the document titled ''Addendum to the Economic Impact Analysis for the Final All Appropriate Inquiries Regulation.'' This document is in the public docket for today's final rule.

B. Paperwork Reduction Act

The information collection requirements contained in this final rule were submitted for approval to the Office of Management and Budget under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq*. The information collection requirements are not enforceable until OMB approves them. The Information Collection Request (ICR) document prepared by EPA has been assigned EPA ICR Number 2144.02.

Under the PRA, EPA is required to estimate the notification, reporting and recordkeeping costs and burdens associated with the requirements specified in today's rule. Today's rule will require persons wanting to assert one of the liability protections under CERCLA to conduct some activities that go beyond current customary and usual business practices (i.e., beyond ASTM E1527–2000) and therefore will impose an information collection burden under the provisions of the Paperwork Reduction Act. The information collection activities are associated with the activities mandated in section 101 (35)(B) of CERCLA for those persons wanting to claim protection from CERCLA liability. None of the information collection burdens associated with the provisions of today's rule include requirements to submit the collected information to EPA or any other government agency. Information collected by persons affected by today's rule may be useful to such persons if their potential liability under CERCLA for the release or threatened release of a hazardous substance is challenged in a court.

The activities associated with today's rule that go beyond current customary and usual business practices include interviews with neighboring property owners and/or occupants in those cases where the subject property is abandoned, documentation of all environmental cleanup liens in the Phase I Environmental Site Assessment report, discussion of the relationship of purchase price to value of the property in the report, and consideration and discussion of whether additional environmental investigation is warranted. Paperwork burdens are estimated to be 546,179 hours annually, with a total cost of $29,583,206 annually. The estimated average burden hours per response is estimated to be approximately one hour (or 25 hours per response, assuming a transition from a transaction screen). The estimated average cost burden per response is estimated to be either $67 or $1,479,

[4] We assumed that the environmental professionals will need to complete the full interview with the current owner before conducting an interview with the past owners or occupants. To the extent that this may not always be the case, the average incremental cost (and by extension, the average cost for an AAI Phase I ESA) is overestimated.

depending on whether, under baseline conditions, an ASTM E1527–2000 process or a transaction screen (ASTM E1528) would have been used.

Under the Paperwork Reduction Act, ''burden'' means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations in 40 CFR are listed in 40 CFR part 9. This ICR is approved by OMB, and the Agency will publish a technical amendment to 40 CFR part 9 in the **Federal Register** to display the OMB control number for the approved information collection requirements contained in this final rule.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 U.S.C. 601 *et. seq.,* generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute, unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For the purposes of assessing the impacts of today's rule on small entities, small entity is defined as: (1) A small business that is defined by the Small Business Administration by category of business using the North American Industrial Classification System (NAICS) and codified at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

Since all non-residential property transactions could be affected by today's rule, if it is promulgated, large numbers of small entities could be affected to some degree. However, we estimate that the effects, on the whole, will not be significant for small entities. We estimate that, for the majority of small entities, the average incremental cost of today's rule relative to conducting an ASTM E1527–2000 Phase I Environmental Site Assessment will be between $52 and $58. When we annualize the incremental cost of $58 per property transaction over ten years at a seven percent discount rate, we estimate that the average annual cost increase per establishment per property transaction will be $8. Thus, the cost impact to small entities is estimated to not be significant. A more detailed summary of our analysis of the potential impacts of today's rule to small entities is included in ''Economic Impacts Analysis of the Final All Appropriate Inquiries Regulation.'' This document is included in the docket for today's rule.

After considering the economic impacts of today's final rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. We estimate that, on average, 266,000 small entities may purchase commercial real estate in any given year and therefore could potentially be impacted by today's final rule. Though large numbers of small entities could be affected to some degree, we estimated that the effects, on the whole, would not be significant for small entities. We estimate that, for the majority of small entities, the average incremental cost of today's rule relative to conducting an ASTM E1527–2000 will be between $52 and $58. For the small percentage of cases for which a transaction screen would have been preferred to the ASTM E1527–2000 in the baseline, but which now will require an assessment in compliance with the rule, the average incremental cost of conducting an environmental site assessment will be between $1,459 and $1,465. When we annualize the incremental cost per property transaction over ten years at a seven percent discount rate, we estimate that for the majority of small entities the average annual cost increase per establishment per property transaction will be approximately $8. For the small percentage of entities transitioning from transaction screens to the all appropriate inquiries requirements of the final rule, the average annual cost increase per establishment per property transaction will be $209.[5]

D. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, establishes requirements for federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with ''Federal mandates'' that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation of why that alternative was not adopted.

Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA, a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials to have meaningful and timely input in the development of regulatory proposals with significant federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

Today's rule contains no federal mandates (under the regulatory provisions of Title II of the UMRA) for

[5] For a very small percentage of entities transitioning from transaction screens to the all appropriate inquiries requirements, the maximum increase per establishment per property transaction is estimated to be approximately $2,845. When we annualize this incremental cost per property transaction over ten years at a seven percent discount rate, we estimate that the maximum annual cost increase per establishment per property transaction will be $405. We estimate that approximately one fifth of one percent of the properties transitioning from a transaction screen to a Phase I ESA will have an impact of this magnitude each year.

state, local, or tribal governments or the private sector. The rule imposes no enforceable duty on any state, local, or tribal governments. EPA also determined that today's rule contains no regulatory requirements that might significantly or uniquely affect small governments. In addition, as discussed above, the private sector is not expected to incur costs of $100 million or more as a result of today's rule. Therefore, today's rule is not subject to the requirements of Sections 202 and 205 of UMRA.

E. Executive Order 13132: Federalism

Executive Order 13132, entitled ''Federalism'' (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure ''meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.'' ''Policies that have federalism implications'' is defined in the Executive Order to include regulations that have ''substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.''

Today's rule does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. No state and local government bodies will incur compliance costs as a result of today's rulemaking. Therefore, Executive Order 13132 does not apply to this rule.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

Executive Order 13175, entitled ''Consultation and Coordination with Indian Tribal Governments'' (65 FR 67249, November 9, 2000), requires EPA to develop an accountable process to ensure ''meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.'' Today's rule does not have tribal implications, as specified in Executive Order 13175. Today's rule does not significantly or uniquely affect the communities of Indian tribal governments, nor would it impose direct compliance costs on them. Thus, Executive Order 13175 does not apply to this rule.

G. Executive Order 13045: Protection of Children From Environmental Risks and Safety Risks

Executive Order 13045, entitled ''Protection of Children from Environmental Health Risks and Safety Risks (62 FR 19885, April 23, 1997) applies to any rule that: (1) Is determined to be ''economically significant'' as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children; and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

Today's rule is not subject to the Executive Order because it is not economically significant as defined in Executive Order 12866.

H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution or Use

Today's final rule is not a ''significant energy action'' as defined in Executive Order 13211, ''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use'' (66 FR 28355, May 22, 2001) because it is not likely to have a significantly adverse effect on the supply, distribution, or use of energy. Further, we have concluded that this rule is not likely to have any adverse energy effects.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (''NTTAA''), Public Law 104–113, section 12(d) (15 U.S.C. 272 note), directs EPA to use voluntary consensus standards in its regulatory activities, unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards. Today's rule involves technical standards. Therefore, the requirements of section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272) apply.

Today's final rule is based upon a proposed rule that was developed with the assistance of a regulatory negotiation committee comprised of various affected stakeholder groups and modified slightly, based upon public comments received in response to the proposed rule. When developing the proposed rule, EPA considered using the existing standard developed by ASTM International as the federal standard for all appropriate inquiries. This standard is known as the ASTM E1527–2000 standard (''Standard Practice for Environmental Site Assessment: Phase I Environmental Site Assessment Process''). However, when we proposed the federal standards for all appropriate inquiries, EPA determined that the ASTM E1527–2000 standard is inconsistent with applicable law.

In CERCLA section 101(35)(B), Congress included ten specific criteria to be used in promulgating the all appropriate inquiries rule. The 2000 version of the ASTM Phase I Environmental Site Assessment Process does not address all of the required criteria. For example, the ASTM International standard does not provide for interviews of past owners, operators, and occupants of a facility. The statute, however, states that the federally promulgated standard ''shall include * * * interviews with past and present owners, operators, and occupants of the facility for the purpose of gathering information regarding the potential for contamination at the facility.'' CERCLA section 101(35)(B)(iii)(II). In addition, as outlined in the preamble to the proposed rule (69 FR 52541) the ASTM E1527–2000 standard also does not meet other statutory requirements. As a result, use of the ASTM E1527–2000 standard would be inconsistent with applicable law.

In today's final rule, EPA is referencing the updated standards and practices developed by ASTM International and known as Standard E1527–05 (entitled ''Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process''). The Agency has determined that this voluntary consensus standard is consistent with today's final rule and is compliant with the statutory criteria for all appropriate inquiries. Persons conducting all appropriate inquiries may use the procedures included in the ASTM E1527–05 standard to comply with today's final rule.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898, ''Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations'' (February 11, 1994), is designed to address the environmental and human health conditions of minority and low-income populations. EPA is committed to addressing environmental justice concerns and has assumed a leadership role in environmental justice initiatives to enhance environmental quality for all citizens of the United States. The Agency's goals are to ensure that no segment of the population, regardless of race, color, national origin, income, or net worth bears disproportionately high and adverse human health and environmental impacts as a result of EPA's policies, programs, and activities. Our goal is to ensure that all citizens live in clean and sustainable communities. In response to Executive Order 12898, and to concerns voiced by many groups outside the Agency, EPA's Office of Solid Waste and Emergency Response (OSWER) formed an Environmental Justice Task Force to analyze the array of environmental justice issues specific to waste programs and to develop an overall strategy to identify and address these issues (OSWER Directive No. 9200.3–17). EPA's brownfields program has a particular emphasis on addressing concerns specific to environmental justices communities. Many of the communities and neighborhoods that are most significantly impacted by brownfields are environmental justice communities. EPA's brownfields program targets such communities for assessment, cleanup, and revitalization. The brownfields program has a long history of working with environmental justice communities and advocates through our technical assistance and grant programs. In addition to the monies awarded to such communities in the form of assessment and cleanup grants, the brownfields program also works with environmental justice communities through our job training grants program. The job training grants provide money to government entities to facilitate the training of persons living in or near brownfields communities to attain skills for conducting site assessments and cleanups.

Given that environmental justice communities are significantly impacted by brownfields, and the federal standards for all appropriate inquiries may play a primary role in encouraging the assessment and cleanup of brownfields sites, EPA made it a priority to obtain input from representatives of environmental justice interest groups during the development of today's rulemaking. The Negotiated Rulemaking Committee tasked with developing the all appropriate inquiries proposed rule included three representatives from environmental justice advocacy groups. Each representative played a significant role in the negotiations and in the development of the proposed rule. Today's final rule includes no significant changes to the proposed rule and in particular, includes no changes that will significantly or disproportionately impact environmental justice communities.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a ''major rule'' as defined by 5 U.S.C. 804(2). This rule will be effective November 1, 2006.

List of Subjects in 40 CFR Part 312

Environmental protection, Administrative practice and procedure, Hazardous substances, Intergovernmental relations, Reporting and recordkeeping requirements.

Dated: October 21, 2005.

Stephen L. Johnson,

Administrator.

■ For reasons set out in the preamble, title 40, chapter I of the Code of Federal Regulations is amended by revising part 312 as follows:

PART 312—INNOCENT LANDOWNERS, STANDARDS FOR CONDUCTING ALL APPROPRIATE INQUIRIES

Subpart A—Introduction

Authority: Section 101(35)(B) of CERCLA, as amended, 42 U.S.C. 9601(35)(B).

PART 312—INNOCENT LANDOWNERS, STANDARDS FOR CONDUCTING ALL APPROPRIATE INQUIRIES

Subpart A—Introduction

§ 312.1 Purpose, applicability, scope and disclosure obligations.

(a) *Purpose.* The purpose of this section is to provide standards and practices for ''all appropriate inquiries'' for the purposes of CERCLA sections 101(35)(B)(i)(I) and 101(35)(B)(ii) and (iii).

(b) *Applicability.* The requirements of this part are applicable to:

(1) Persons seeking to establish:

(i) The innocent landowner defense pursuant to CERCLA sections 101(35) and 107(b)(3);

(ii) The bona fide prospective purchaser liability protection pursuant to CERCLA sections 101(40) and 107(r);

(iii) The contiguous property owner liability protection pursuant to CERCLA section 107(q); and

(2) persons conducting site characterization and assessments with the use of a grant awarded under CERCLA section 104(k)(2)(B).

(c) *Scope.* (1) Persons seeking to establish one of the liability protections under paragraph (b)(1) of this section must conduct investigations as required in this part, including an inquiry by an environmental professional, as required under § 312.21, and the additional inquiries defined in § 312.22, to identify

conditions indicative of releases or threatened releases, as defined in CERCLA section 101(22), of hazardous substances, as defined in CERCLA section 101(14).

(2) Persons identified in paragraph (b)(2) of this section must conduct investigations required in this part, including an inquiry by an environmental professional, as required under § 312.21, and the additional inquiries defined in § 312.22, to identify conditions indicative of releases and threatened releases of hazardous substances, as defined in CERCLA section 101(22), and as applicable per the terms and conditions of the grant or cooperative agreement, releases and threatened releases of:

(i) Pollutants and contaminants, as defined in CERCLA section 101(33);

(ii) Petroleum or petroleum products excluded from the definition of ''hazardous substance'' as defined in CERCLA section 101(14); and

(iii) Controlled substances, as defined in 21 U.S.C. 802.

(d) *Disclosure obligations.* None of the requirements of this part limits or expands disclosure obligations under any federal, state, tribal, or local law, including the requirements under CERCLA sections 101(40)(c) and 107(q)(1)(A)(vii) requiring persons, including environmental professionals, to provide all legally required notices with respect to the discovery of releases of hazardous substances. It is the obligation of each person, including environmental professionals, conducting the inquiry to determine his or her respective disclosure obligations under federal, state, tribal, and local law and to comply with such disclosure requirements.

Subpart B—Definitions and References

§ 312.10 Definitions.

(a) Terms used in this part and not defined below, but defined in either CERCLA or 40 CFR part 300 (the National Oil and Hazardous Substances Pollution Contingency Plan) shall have the definitions provided in CERCLA or 40 CFR part 300.

(b) When used in this part, the following terms have the meanings provided as follows:

Abandoned property means: property that can be presumed to be deserted, or an intent to relinquish possession or control can be inferred from the general disrepair or lack of activity thereon such that a reasonable person could believe that there was an intent on the part of the current owner to surrender rights to the property.

Adjoining properties means: any real property or properties the border of which is (are) shared in part or in whole with that of the subject property, or that would be shared in part or in whole with that of the subject property but for a street, road, or other public thoroughfare separating the properties.

Data gap means: a lack of or inability to obtain information required by the standards and practices listed in subpart C of this part despite good faith efforts by the environmental professional or persons identified under § 312.1(b), as appropriate, to gather such information pursuant to §§ 312.20(e)(1) and 312.20(e)(2).

Date of acquisition or purchase date means: the date on which a person acquires title to the property.

Environmental Professional means:

(1) a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of releases or threatened releases (see § 312.1(c)) on, at, in, or to a property, sufficient to meet the objectives and performance factors in § 312.20(e) and (f).

(2) Such a person must:

(i) Hold a current Professional Engineer's or Professional Geologist's license or registration from a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) and have the equivalent of three (3) years of full-time relevant experience; or

(ii) Be licensed or certified by the federal government, a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) to perform environmental inquiries as defined in § 312.21 and have the equivalent of three (3) years of full-time relevant experience; or

(iii) Have a Baccalaureate or higher degree from an accredited institution of higher education in a discipline of engineering or science and the equivalent of five (5) years of full-time relevant experience; or

(iv) Have the equivalent of ten (10) years of full-time relevant experience.

(3) An environmental professional should remain current in his or her field through participation in continuing education or other activities.

(4) The definition of environmental professional provided above does not preempt state professional licensing or registration requirements such as those for a professional geologist, engineer, or site remediation professional. Before commencing work, a person should determine the applicability of state professional licensing or registration laws to the activities to be undertaken as part of the inquiry identified in § 312.21(b).

(5) A person who does not qualify as an environmental professional under the foregoing definition may assist in the conduct of all appropriate inquiries in accordance with this part if such person is under the supervision or responsible charge of a person meeting the definition of an environmental professional provided above when conducting such activities.

Relevant experience, as used in the definition of environmental professional in this section, means: participation in the performance of all appropriate inquiries investigations, environmental site assessments, or other site investigations that may include environmental analyses, investigations, and remediation which involve the understanding of surface and subsurface environmental conditions and the processes used to evaluate these conditions and for which professional judgment was used to develop opinions regarding conditions indicative of releases or threatened releases (see § 312.1(c)) to the subject property.

Good faith means: the absence of any intention to seek an unfair advantage or to defraud another party; an honest and sincere intention to fulfill one's obligations in the conduct or transaction concerned.

Institutional controls means: non-engineered instruments, such as administrative and/or legal controls, that help to minimize the potential for human exposure to contamination and/or protect the integrity of a remedy.

§ 312.11 References.

The following industry standards may be used to comply with the requirements set forth in §§ 312.23 through 312.31:

(a) The procedures of ASTM International Standard E1527–05 entitled ''Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.''

(b) [Reserved]

Subpart C—Standards and Practices

§ 312.20 All appropriate inquiries.

(a) ''All appropriate inquiries'' pursuant to CERCLA section 101(35)(B) must be conducted within one year prior to the date of acquisition of the subject property and must include:

(1) An inquiry by an environmental professional (as defined in § 312.10), as provided in § 312.21;

(2) The collection of information pursuant to § 312.22 by persons identified under § 312.1(b); and

(3) Searches for recorded environmental cleanup liens, as required in § 312.25.

(b) Notwithstanding paragraph (a) of this section, the following components of the all appropriate inquiries must be conducted or updated within 180 days of and prior to the date of acquisition of the subject property:

(1) Interviews with past and present owners, operators, and occupants (see § 312.23);

(2) Searches for recorded environmental cleanup liens (see § 312.25);

(3) Reviews of federal, tribal, state, and local government records (see § 312.26);

(4) Visual inspections of the facility and of adjoining properties (see § 312.27); and

(5) The declaration by the environmental professional (see § 312.21(d)).

(c) All appropriate inquiries may include the results of and information contained in an inquiry previously conducted by, or on the behalf of, persons identified under § 312.1(b) and who are responsible for the inquiries for the subject property, provided:

(1) Such information was collected during the conduct of all appropriate inquiries in compliance with the requirements of CERCLA sections 101(35)(B), 101(40)(B) and 107(q)(A)(viii);

(2) Such information was collected or updated within one year prior to the date of acquisition of the subject property;

(3) Notwithstanding paragraph (b)(2) of this section, the following components of the inquiries were conducted or updated within 180 days of and prior to the date of acquisition of the subject property:

(i) Interviews with past and present owners, operators, and occupants (see § 312.23);

(ii) Searches for recorded environmental cleanup liens (see § 312.25);

(iii) Reviews of federal, tribal, state, and local government records (see § 312.26);

(iv) Visual inspections of the facility and of adjoining properties (see § 312.27); and

(v) The declaration by the environmental professional (see § 312.21(d)).

(4) Previously collected information is updated to include relevant changes in the conditions of the property and specialized knowledge, as outlined in § 312.28, of the persons conducting the all appropriate inquiries for the subject property, including persons identified in § 312.1(b) and the environmental professional, defined in § 312.10.

(d) All appropriate inquiries can include the results of report(s) specified in § 312.21(c), that have been prepared by or for other persons, provided that:

(1) The report(s) meets the objectives and performance factors of this regulation, as specified in paragraphs (e) and (f) of this section; and

(2) The person specified in § 312.1(b) and seeking to use the previously collected information reviews the information and conducts the additional inquiries pursuant to §§ 312.28, 312.29 and 312.30 and the all appropriate inquiries are updated in paragraph (b)(3) of this section, as necessary.

(e) *Objectives.* The standards and practices set forth in this part for All Appropriate Inquiries are intended to result in the identification of conditions indicative of releases and threatened releases of hazardous substances on, at, in, or to the subject property.

(1) In performing the all appropriate inquiries, as defined in this section and provided in the standards and practices set forth this subpart, the persons identified under § 312.1(b)(1) and the environmental professional, as defined in § 312.10, must seek to identify through the conduct of the standards and practices set forth in this subpart, the following types of information about the subject property:

(i) Current and past property uses and occupancies;

(ii) Current and past uses of hazardous substances;

(iii) Waste management and disposal activities that could have caused releases or threatened releases of hazardous substances;

(iv) Current and past corrective actions and response activities undertaken to address past and on-going releases of hazardous substances;

(v) Engineering controls;

(vi) Institutional controls; and

(vii) Properties adjoining or located nearby the subject property that have environmental conditions that could have resulted in conditions indicative of releases or threatened releases of hazardous substances to the subject property.

(2) In the case of persons identified in § 312.1(b)(2), the standards and practices for All Appropriate Inquiries set forth in this part are intended to result in the identification of conditions indicative of releases and threatened releases of hazardous substances, pollutants, contaminants, petroleum and petroleum products, and controlled substances (as defined in 21 U.S.C. 802) on, at, in, or to the subject property. In performing the all appropriate inquiries, as defined in this section and provided in the standards and practices set forth in this subpart, the persons identified under § 312.1(b) and the environmental professional, as defined in § 312.10, must seek to identify through the conduct of the standards and practices set forth in this subpart, the following types of information about the subject property:

(i) Current and past property uses and occupancies;

(ii) Current and past uses of hazardous substances, pollutants, contaminants, petroleum and petroleum products, and controlled substances (as defined in 21 U.S.C. 802);

(iii) Waste management and disposal activities;

(iv) Current and past corrective actions and response activities undertaken to address past and on-going releases of hazardous substances pollutants, contaminants, petroleum and petroleum products, and controlled substances (as defined in 21 U.S.C. 802);

(v) Engineering controls;

(vi) Institutional controls; and

(vii) Properties adjoining or located nearby the subject property that have environmental conditions that could have resulted in conditions indicative of releases or threatened releases of hazardous substances, pollutants, contaminants, petroleum and petroleum products, and controlled substances (as defined in 21 U.S.C. 802) to the subject property.

(f) *Performance factors.* In performing each of the standards and practices set forth in this subpart and to meet the objectives stated in paragraph (e) of this section, the persons identified under § 312.1(b) or the environmental professional as defined in § 312.10 (as appropriate to the particular standard and practice) must seek to:

(1) Gather the information that is required for each standard and practice listed in this subpart that is publicly available, obtainable from its source within reasonable time and cost constraints, and which can practicably be reviewed; and

(2) Review and evaluate the thoroughness and reliability of the information gathered in complying with each standard and practice listed in this subpart taking into account information gathered in the course of complying with the other standards and practices of this subpart.

(g) To the extent there are data gaps (as defined in § 312.10) in the information developed as part of the inquiries in paragraph (e) of this section that affect the ability of persons (including the environmental professional) conducting the all

appropriate inquiries to identify conditions indicative of releases or threatened releases in each area of inquiry under each standard and practice such persons should identify such data gaps, identify the sources of information consulted to address such data gaps, and comment upon the significance of such data gaps with regard to the ability to identify conditions indicative of releases or threatened releases of hazardous substances [and in the case of persons identified in § 312.1(b)(2), hazardous substances, pollutants, contaminants, petroleum and petroleum products, and controlled substances (as defined in 21 U.S.C. 802)] on, at, in, or to the subject property. Sampling and analysis may be conducted to develop information to address data gaps.

(h) Releases and threatened releases identified as part of the all appropriate inquiries should be noted in the report of the inquiries. These standards and practices however are not intended to require the identification in the written report prepared pursuant to § 312.21(c) of quantities or amounts, either individually or in the aggregate, of hazardous substances pollutants, contaminants, petroleum and petroleum products, and controlled substances (as defined in 21 U.S.C. 802) that because of said quantities and amounts, generally would not pose a threat to human health or the environment.

§ 312.21 Results of inquiry by an environmental professional.

(a) Persons identified under § 312.1(b) must undertake an inquiry, as defined in paragraph (b) of this section, by an environmental professional, or conducted under the supervision or responsible charge of, an environmental professional, as defined in § 312.10. Such inquiry is hereafter referred to as ''the inquiry of the environmental professional.''

(b) The inquiry of the environmental professional must include the requirements set forth in §§ 312.23 (interviews with past and present owners * * *), 312.24 (reviews of historical sources * * *), 312.26 (reviews of government records), 312.27 (visual inspections), 312.30 (commonly known or reasonably ascertainable information), and 312.31 (degree of obviousness of the presence * * * and the ability to detect the contamination * * *). In addition, the inquiry should take into account information provided to the environmental professional as a result of the additional inquiries conducted by persons identified in § 312.1(b) and in accordance with the requirements of § 312.22.

(c) The results of the inquiry by an environmental professional must be documented in a written report that, at a minimum, includes the following:

(1) An opinion as to whether the inquiry has identified conditions indicative of releases or threatened releases of hazardous substances [and in the case of inquiries conducted for persons identified in § 312.1(b)(2) conditions indicative of releases and threatened releases of pollutants, contaminants, petroleum and petroleum products, and controlled substances (as defined in 21 U.S.C. 802)] on, at, in, or to the subject property;

(2) An identification of data gaps (as defined in § 312.10) in the information developed as part of the inquiry that affect the ability of the environmental professional to identify conditions indicative of releases or threatened releases of hazardous substances [and in the case of inquiries conducted for persons identified in § 312.1(b)(2) conditions indicative of releases and threatened releases of pollutants, contaminants, petroleum and petroleum products, and controlled substances (as defined in 21 U.S.C. 802)] on, at, in, or to the subject property and comments regarding the significance of such data gaps on the environmental professional's ability to provide an opinion as to whether the inquiry has identified conditions indicative of releases or threatened releases on, at, in, or to the subject property. If there are data gaps such that the environmental professional cannot reach an opinion regarding the identification of conditions indicative of releases and threatened releases, such data gaps must be noted in the environmental professional's opinion in paragraph (c)(1) of this section; and

(3) The qualifications of the environmental professional(s).

(d) The environmental professional must place the following statements in the written document identified in paragraph (c) of this section and sign the document:

> ''[I, We] declare that, to the best of [my, our] professional knowledge and belief, [I, we] meet the definition of Environmental Professional as defined in § 312.10 of this part.''
>
> ''[I, We] have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. [I, We] have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.''

§ 312.22 Additional inquiries.

(a) Persons identified under § 312.1(b) must conduct the inquiries listed in paragraphs (a)(1) through (a)(4) below and may provide the information associated with such inquiries to the environmental professional responsible for conducting the activities listed in § 312.21:

(1) As required by § 312.25 and if not otherwise obtained by the environmental professional, environmental cleanup liens against the subject property that are filed or recorded under federal, tribal, state, or local law;

(2) As required by § 312.28, specialized knowledge or experience of the person identified in § 312.1(b);

(3) As required by § 312.29, the relationship of the purchase price to the fair market value of the subject property, if the property was not contaminated; and

(4) As required by § 312.30, and if not otherwise obtained by the environmental professional, commonly known or reasonably ascertainable information about the subject property.

§ 312.23 Interviews with past and present owners, operators, and occupants.

(a) Interviews with owners, operators, and occupants of the subject property must be conducted for the purposes of achieving the objectives and performance factors of § 312.20(e) and (f).

(b) The inquiry of the environmental professional must include interviewing the current owner and occupant of the subject property. If the property has multiple occupants, the inquiry of the environmental professional shall include interviewing major occupants, as well as those occupants likely to use, store, treat, handle or dispose of hazardous substances [and in the case of inquiries conducted for persons identified in § 312.1(b)(2) pollutants, contaminants, petroleum and petroleum products, and controlled substances (as defined in 21 U.S.C. 802)], or those who have likely done so in the past.

(c) The inquiry of the environmental professional also must include, to the extent necessary to achieve the objectives and performance factors of § 312.20(e) and (f), interviewing one or more of the following persons:

(1) Current and past facility managers with relevant knowledge of uses and physical characteristics of the property;

(2) Past owners, occupants, or operators of the subject property; or

(3) Employees of current and past occupants of the subject property.

(d) In the case of inquiries conducted at ''abandoned properties,'' as defined in § 312.10, where there is evidence of potential unauthorized uses of the subject property or evidence of

uncontrolled access to the subject property, the environmental professional's inquiry must include interviewing one or more (as necessary) owners or occupants of neighboring or nearby properties from which it appears possible to have observed uses of, or releases at, such abandoned properties for the purpose of gathering information necessary to achieve the objectives and performance factors of § 312.20(e) and (f).

§ 312.24 Reviews of historical sources of information.

(a) Historical documents and records must be reviewed for the purposes of achieving the objectives and performance factors of § 312.20(e) and (f). Historical documents and records may include, but are not limited to, aerial photographs, fire insurance maps, building department records, chain of title documents, and land use records.

(b) Historical documents and records reviewed must cover a period of time as far back in the history of the subject property as it can be shown that the property contained structures or from the time the property was first used for residential, agricultural, commercial, industrial, or governmental purposes. For the purpose of achieving the objectives and performance factors of § 312.20(e) and (f), the environmental professional may exercise professional judgment in context of the facts available at the time of the inquiry as to how far back in time it is necessary to search historical records.

§ 312.25 Searches for recorded environmental cleanup liens.

(a) All appropriate inquiries must include a search for the existence of environmental cleanup liens against the subject property that are filed or recorded under federal, tribal, state, or local law.

(b) All information collected regarding the existence of such environmental cleanup liens associated with the subject property by persons to whom this part is applicable per § 312.1(b) and not by an environmental professional, may be provided to the environmental professional or retained by the applicable party.

§ 312.26 Reviews of Federal, State, Tribal, and local government records.

(a) Federal, tribal, state, and local government records or data bases of government records of the subject property and adjoining properties must be reviewed for the purposes of achieving the objectives and performance factors of § 312.20(e) and (f).

(b) With regard to the subject property, the review of federal, tribal, and state government records or data bases of such government records and local government records and data bases of such records should include:

(1) Records of reported releases or threatened releases, including site investigation reports for the subject property;

(2) Records of activities, conditions, or incidents likely to cause or contribute to releases or threatened releases as defined in § 312.1(c), including landfill and other disposal unit location records and permits, storage tank records and permits, hazardous waste handler and generator records and permits, federal, tribal and state government listings of sites identified as priority cleanup sites, and spill reporting records;

(3) CERCLIS records;

(4) Public health records;

(5) Emergency Response Notification System records;

(6) Registries or publicly available lists of engineering controls; and

(7) Registries or publicly available lists of institutional controls, including environmental land use restrictions, applicable to the subject property.

(c) With regard to nearby or adjoining properties, the review of federal, tribal, state, and local government records or databases of government records should include the identification of the following:

(1) Properties for which there are government records of reported releases or threatened releases. Such records or databases containing such records and the associated distances from the subject property for which such information should be searched include the following:

(i) Records of NPL sites or tribal- and state-equivalent sites (one mile);

(ii) RCRA facilities subject to corrective action (one mile);

(iii) Records of federally-registered, or state-permitted or registered, hazardous waste sites identified for investigation or remediation, such as sites enrolled in state and tribal voluntary cleanup programs and tribal- and state-listed brownfields sites (one-half mile);

(iv) Records of leaking underground storage tanks (one-half mile); and

(2) Properties that previously were identified or regulated by a government entity due to environmental concerns at the property. Such records or databases containing such records and the associated distances from the subject property for which such information should be searched include the following:

(i) Records of delisted NPL sites (one-half mile);

(ii) Registries or publicly available lists of engineering controls (one-half mile); and

(iii) Records of former CERCLIS sites with no further remedial action notices (one-half mile).

(3) Properties for which there are records of federally-permitted, tribal-permitted or registered, or state-permitted or registered waste management activities. Such records or data bases that may contain such records include the following:

(i) Records of RCRA small quantity and large quantity generators (adjoining properties);

(ii) Records of federally-permitted, tribal-permitted, or state-permitted (or registered) landfills and solid waste management facilities (one-half mile); and

(iii) Records of registered storage tanks (adjoining property).

(4) A review of additional government records with regard to sites identified under paragraphs (c)(1) through (c)(3) of this section may be necessary in the judgment of the environmental professional for the purpose of achieving the objectives and performance factors of § 312.20(e) and (f).

(d) The search distance from the subject property boundary for reviewing government records or databases of government records listed in paragraph (c) of this section may be modified based upon the professional judgment of the environmental professional. The rationale for such modifications must be documented by the environmental professional. The environmental professional may consider one or more of the following factors in determining an alternate appropriate search distance:

(1) The nature and extent of a release;

(2) Geologic, hydrogeologic, or topographic conditions of the subject property and surrounding environment;

(3) Land use or development densities;

(4) The property type;

(5) Existing or past uses of surrounding properties;

(6) Potential migration pathways (e.g., groundwater flow direction, prevalent wind direction); or

(7) Other relevant factors.

§ 312.27 Visual inspections of the facility and of adjoining properties.

(a) For the purpose of achieving the objectives and performance factors of § 312.20(e) and (f), the inquiry of the environmental professional must include:

(1) A visual on-site inspection of the subject property and facilities and improvements on the subject property,

including a visual inspection of the areas where hazardous substances may be or may have been used, stored, treated, handled, or disposed. Physical limitations to the visual inspection must be noted.

(2) A visual inspection of adjoining properties, from the subject property line, public rights-of-way, or other vantage point (e.g., aerial photography), including a visual inspection of areas where hazardous substances may be or may have been stored, treated, handled or disposed. Physical limitations to the inspection of adjacent properties must be noted.

(b) Persons conducting site characterization and assessments using a grant awarded under CERCLA section 104(k)(2)(B) must include in the inquiries referenced in § 312.27(a) visual inspections of areas where hazardous substances, and may include, as applicable per the terms and conditions of the grant or cooperative agreement, pollutants and contaminants, petroleum and petroleum products, and controlled substances as defined in 21 U.S.C. 802 may be or may have been used, stored, treated, handled or disposed at the subject property and adjoining properties.

(c) Except as noted in this subsection, a visual on-site inspection of the subject property must be conducted. In the unusual circumstance where an on-site visual inspection of the subject property cannot be performed because of physical limitations, remote and inaccessible location, or other inability to obtain access to the property, provided good faith (as defined in § 312.10) efforts have been taken to obtain such access, an on-site inspection will not be required. The mere refusal of a voluntary seller to provide access to the subject property does not constitute an unusual circumstance. In such unusual circumstances, the inquiry of the environmental professional must include:

(1) Visually inspecting the subject property via another method (such as aerial imagery for large properties), or visually inspecting the subject property from the nearest accessible vantage point (such as the property line or public road for small properties);

(2) Documentation of efforts undertaken to obtain access and an explanation of why such efforts were unsuccessful; and

(3) Documentation of other sources of information regarding releases or threatened releases at the subject property that were consulted in accordance with § 312.20(e). Such documentation should include comments by the environmental professional on the significance of the failure to conduct a visual on-site inspection of the subject property with regard to the ability to identify conditions indicative of releases or threatened releases on, at, in, or to the subject property, if any.

§ 312.28 Specialized knowledge or experience on the part of the defendant.

(a) Persons to whom this part is applicable per § 312.1(b) must take into account, their specialized knowledge of the subject property, the area surrounding the subject property, the conditions of adjoining properties, and any other experience relevant to the inquiry, for the purpose of identifying conditions indicative of releases or threatened releases at the subject property, as defined in § 312.1(c).

(b) All appropriate inquiries, as outlined in § 312.20, are not complete unless the results of the inquiries take into account the relevant and applicable specialized knowledge and experience of the persons responsible for undertaking the inquiry (as described in § 312.1(b)).

§ 312.29 The relationship of the purchase price to the value of the property, if the property was not contaminated.

(a) Persons to whom this part is applicable per § 312.1(b) must consider whether the purchase price of the subject property reasonably reflects the fair market value of the property, if the property were not contaminated.

(b) Persons who conclude that the purchase price of the subject property does not reasonably reflect the fair market value of that property, if the property were not contaminated, must consider whether or not the differential in purchase price and fair market value is due to the presence of releases or threatened releases of hazardous substances.

(c) Persons conducting site characterization and assessments with the use of a grant awarded under CERCLA section 104(k)(2)(B) and who know that the purchase price of the subject property does not reasonably reflect the fair market value of that property, if the property were not contaminated, must consider whether or not the differential in purchase price and fair market value is due to the presence of releases or threatened releases of hazardous substances, pollutants, contaminants, petroleum and petroleum products, or controlled substances as defined in 21 U.S.C. 802.

§ 312.30 Commonly known or reasonably ascertainable information about the property.

(a) Throughout the inquiries, persons to whom this part is applicable per § 312.1(b) and environmental professionals conducting the inquiry must take into account commonly known or reasonably ascertainable information within the local community about the subject property and consider such information when seeking to identify conditions indicative of releases or threatened releases, as set forth in § 312.1(c), at the subject property.

(b) Commonly known information may include information obtained by the person to whom this part applies in § 312.1(b) or by the environmental professional about releases or threatened releases at the subject property that is incidental to the information obtained during the inquiry of the environmental professional.

(c) To the extent necessary to achieve the objectives and performance factors of § 312.20(e) and (f), persons to whom this part is applicable per § 312.1(b) and the environmental professional must gather information from varied sources whose input either individually or taken together may provide commonly known or reasonably ascertainable information about the subject property; the environmental professional may refer to one or more of the following sources of information:

(1) Current owners or occupants of neighboring properties or properties adjacent to the subject property;

(2) Local and state government officials who may have knowledge of, or information related to, the subject property;

(3) Others with knowledge of the subject property; and

(4) Other sources of information (e.g., newspapers, Web sites, community organizations, local libraries and historical societies).

§ 312.31 The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation.

(a) Persons to whom this part is applicable per § 312.1(b) and environmental professionals conducting an inquiry of a property on behalf of such persons must take into account the information collected under § 312.23 through 312.30 in considering the degree of obviousness of the presence of releases or threatened releases at the subject property.

(b) Persons to whom this part is applicable per § 312.1(b) and

environmental professionals conducting an inquiry of a property on behalf of such persons must take into account the information collected under § 312.23 through 312.30 in considering the ability to detect contamination by appropriate investigation. The inquiry of the environmental professional should include an opinion regarding additional appropriate investigation, if any.

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

MAR - 6 2003

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

MEMORANDUM

SUBJECT: Interim Guidance Regarding Criteria Landowners Must Meet in Order to Qualify for Bona Fide Prospective Purchaser, Contiguous Property Owner, or Innocent Landowner Limitations on CERCLA Liability ("Common Elements")

FROM: Susan E. Bromm, Director
Office of Site Remediation Enforcement

TO: Director, Office of Site Remediation and Restoration, Region I
Director, Emergency and Remedial Response Division, Region II
Director, Hazardous Site Cleanup Division, Region III
Director, Waste Management Division, Region IV
Directors, Superfund Division, Regions V, VI, VII and IX
Assistant Regional Administrator, Office of Ecosystems Protection and Remediation, Region VIII
Director, Office of Environmental Cleanup, Region X
Director, Office of Environmental Stewardship, Region I
Director, Environmental Accountability Division, Region IV
Regional Counsel, Regions II, III, V, VI, VII, IX, and X
Assistant Regional Administrator, Office of Enforcement, Compliance, and Environmental Justice, Region VIII

I. Introduction

The Small Business Liability Relief and Brownfields Revitalization Act, ("Brownfields Amendments"), Pub. L. No. 107-118, enacted in January 2002, amended the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), to provide important liability limitations for landowners that qualify as: (1) bona fide prospective purchasers, (2) contiguous property owners, or (3) innocent landowners (hereinafter, "landowner liability protections" or "landowner provisions").

To meet the statutory criteria for a landowner liability protection, a landowner must meet certain threshold criteria and satisfy certain continuing obligations.[1] Many of the conditions are the same or similar under the three landowner provisions ("common elements"). This memorandum is intended to provide Environmental Protection Agency personnel with some general guidance on the common elements of the landowner liability protections. Specifically, this memorandum first discusses the threshold criteria of performing "all appropriate inquiry" and demonstrating no "affiliation" with a liable party. The memorandum then discusses the continuing obligations:

- compliance with land use restrictions and not impeding the effectiveness or integrity of institutional controls;
- taking "reasonable steps" with respect to hazardous substances affecting a landowner's property;
- providing cooperation, assistance and access;
- complying with information requests and administrative subpoenas; and
- providing legally required notices.

A chart summarizing the common elements applicable to bona fide prospective purchasers, contiguous property owners, and innocent landowners is attached to this memorandum (Attachment A). In addition, two documents relating to reasonable steps are attached to this memorandum: (1) a "Questions and Answers" document (Attachment B); and (2) a sample site-specific Comfort/Status Letter (Attachment C).

This memorandum addresses only some of the criteria a landowner must meet in order to qualify under the statute as a bona fide prospective purchaser, contiguous property owner, or innocent landowner (i.e., the common elements described above). Other criteria (e.g., the criterion that a contiguous property owner "did not cause, contribute, or consent to the release or threatened release," found in CERCLA § 107(q)(1)(A)(i), and the criterion that a bona fide prospective purchaser and innocent landowner purchase the property after all disposal of hazardous substances at the facility, found in CERCLA §§ 101(40)(A), 101(35)(A)), are not addressed in this memorandum. In addition, this guidance does not address obligations landowners may have under state statutory or common law.

This memorandum is an interim guidance issued in the exercise of EPA's enforcement discretion. As EPA gains more experience implementing the Brownfields Amendments, the Agency may revise this guidance. EPA welcomes comments on this guidance and its implementation. Comments may be submitted to the contacts identified at the end of this memorandum.

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[1] See CERCLA §§ 101(40)(B)-(H), 107(q)(1)(A), 101(35)(A)-(B).

II. Background

The bona fide prospective purchaser provision, CERCLA § 107(r), provides a new landowner liability protection and limits EPA's recourse for unrecovered response costs to a lien on property for the increase in fair market value attributable to EPA's response action. To qualify as a bona fide prospective purchaser, a person must meet the criteria set forth in CERCLA § 101(40), many of which are discussed in this memorandum. A purchaser of property must buy the property after January 11, 2002 (the date of enactment of the Brownfields Amendments), in order to qualify as a bona fide prospective purchaser. These parties may purchase property with knowledge of contamination after performing all appropriate inquiry, and still qualify for the landowner liability protection, provided they meet the other criteria set forth in CERCLA § 101(40).[2]

The new contiguous property owner provision, CERCLA § 107(q), excludes from the definition of "owner" or "operator" a person who owns property that is "contiguous" or otherwise similarly situated to, a facility that is the only source of contamination found on his property. To qualify as a contiguous property owner, a landowner must meet the criteria set forth in CERCLA § 107(q)(1)(A), many of which are common elements. This landowner provision "protects parties that are essentially victims of pollution incidents caused by their neighbor's actions." S. Rep. No. 107-2, at 10 (2001). Contiguous property owners must perform all appropriate inquiry prior to purchasing property. Persons who know, or have reason to know, prior to purchase, that the property is or could be contaminated, cannot qualify for the contiguous property owner liability protection.[3]

The Brownfields Amendments also clarified the CERCLA § 107(b)(3) innocent landowner affirmative defense. To qualify as an innocent landowner, a person must meet the criteria set forth in section 107(b)(3) and section 101(35). Many of the criteria in section 101(35) are common elements. CERCLA § 101(35)(A) distinguishes between three types of innocent landowners. Section 101(35)(A)(i) recognizes purchasers who acquire property without knowledge of the contamination. Section 101(35)(A)(ii) discusses governments acquiring contaminated property by escheat, other involuntary transfers or acquisitions, or the exercise of eminent domain authority by purchase or condemnation. Section 101(35)(A)(iii) covers inheritors of contaminated property. For purposes of this guidance, the term "innocent landowner" refers only to the unknowing purchasers as defined in section 101(35)(A)(i). Like

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[2] For a discussion of when EPA will consider providing a prospective purchaser with a covenant not to sue in light of the Brownfields Amendments, see "Bona Fide Prospective Purchasers and the New Amendments to CERCLA," B. Breen (May 31, 2001).

[3] CERCLA § 107(q)(1)(C) provides that a person who does not qualify as a contiguous property owner because he had, or had reason to have, knowledge that the property was or could be contaminated when he bought the property, may still qualify for a landowner liability protection as a bona fide prospective purchaser, as long as he meets the criteria set forth in CERCLA § 101(40).

contiguous property owners, persons desiring to qualify as innocent landowners must perform all appropriate inquiry prior to purchase and cannot know, or have reason to know, of contamination in order to have a viable defense as an innocent landowner.

III. Discussion

A party claiming to be a bona fide prospective purchaser, contiguous property owner, or section 101(35)(A)(i) innocent landowner bears the burden of proving that it meets the conditions of the applicable landowner liability protection.[4] Ultimately, courts will determine whether landowners in specific cases have met the conditions of the landowner liability protections and may provide interpretations of the statutory conditions. EPA offers some general guidance below regarding the common elements. This guidance is intended to be used by Agency personnel in exercising enforcement discretion. Evaluating whether a party meets these conditions will require careful, fact-specific analysis.

A. Threshold Criteria

To qualify as a bona fide prospective purchaser, contiguous property owner, or innocent landowner, a person must perform "all appropriate inquiry" before acquiring the property. Bona fide prospective purchasers and contiguous property owners must, in addition, demonstrate that they are not potentially liable or "affiliated" with any other person that is potentially liable for response costs at the property.

1. *All Appropriate Inquiry*

To meet the statutory criteria of a bona fide prospective purchaser, contiguous property owner, or innocent landowner, a person must perform "all appropriate inquiry" into the previous ownership and uses of property before acquisition of the property. CERCLA §§ 101(40)(B), 107(q)(1)(A)(viii), 101(35)(A)(i),(B)(i). Purchasers of property wishing to avail themselves of a landowner liability protection cannot perform all appropriate inquiry after purchasing contaminated property. As discussed above, bona fide prospective purchasers may acquire property with knowledge of contamination, after performing all appropriate inquiry, and maintain their protection from liability. In contrast, knowledge, or reason to know, of contamination prior to purchase defeats the contiguous property owner liability protection and the innocent landowner liability protection.

The Brownfields Amendments specify the all appropriate inquiry standard to be applied. The Brownfields Amendments state that purchasers of property before May 31, 1997 shall take into account such things as commonly known information about the property, the value of the property if clean, the ability of the defendant to detect contamination, and other similar criteria. CERCLA § 101(35)(B)(iv)(I). For property purchased on or after May 31, 1997, the procedures

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[4] CERCLA §§ 101(40), 107(q)(1)(B), 101(35).

of the American Society for Testing and Materials ("ASTM"), including the document known as Standard E1527 - 97, entitled "Standard Practice for Environmental Site Assessments: Phase 1 Environmental Site Assessment Process," are to be used. CERCLA § 101(35)(B)(iv)(II). The Brownfields Amendments require EPA, not later than January 2004, to promulgate a regulation containing standards and practices for all appropriate inquiry and set out criteria that must be addressed in EPA's regulation. CERCLA § 101(35)(B)(ii), (iii). The all appropriate inquiry standard will thus be the subject of future EPA regulation and guidance.

2. *Affiliation*

To meet the statutory criteria of a bona fide prospective purchaser or contiguous property owner, a party must not be potentially liable or affiliated with any other person who is potentially liable for response costs.[5] Neither the bona fide prospective purchaser/contiguous property owner provisions nor the legislative history define the phrase "affiliated with," but on its face the phrase has a broad definition, covering direct and indirect familial relationships, as well as many contractual, corporate, and financial relationships. It appears that Congress intended the affiliation language to prevent a potentially responsible party from contracting away its CERCLA liability through a transaction to a family member or related corporate entity. EPA recognizes that the potential breadth of the term "affiliation" could be taken to an extreme, and in exercising its enforcement discretion, EPA intends to be guided by Congress' intent of preventing transactions structured to avoid liability.

The innocent landowner provision does not contain this "affiliation" language. In order

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[5] The bona fide prospective purchaser provision provides, in pertinent part:

> NO AFFILIATION—The person is not—(i) potentially liable, or affiliated with any other person that is potentially liable, for response costs at a facility through— (I) any direct or indirect familial relationship; or (II) any contractual, corporate, or financial relationship (other than a contractual, corporate, or financial relationship that is created by the instruments by which title to the facility is conveyed or financed or by a contract for the sale of goods or services); or (ii) the result of a reorganization of a business entity that was potentially liable. CERCLA § 101(40)(H).

The contiguous property owner provision provides, in pertinent part:

> NOT CONSIDERED TO BE AN OWNER OR OPERATOR— . . . (ii) the person is not— (I) potentially liable, or affiliated with any other person that is potentially liable, for response costs at a facility through any direct or indirect familial relationship or any contractual, corporate, or financial relationship (other than a contractual, corporate, or financial relationship that is created by a contract for the sale of goods or services); or (II) the result of a reorganization of a business entity that was potentially liable[.] CERCLA § 107(q)(1)(A)(ii).

to meet the statutory criteria of the innocent landowner liability protection, however, a person must establish by a preponderance of the evidence that the act or omission that caused the release or threat of release of hazardous substances and the resulting damages were caused by a third party with whom the person does not have an employment, agency, or contractual relationship. Contractual relationship is defined in section 101(35)(A).

B. Continuing Obligations

Several of the conditions a landowner must meet in order to achieve and maintain a landowner liability protection are continuing obligations. This section discusses those continuing obligations: (1) complying with land use restrictions and institutional controls; (2) taking reasonable steps with respect to hazardous substance releases; (3) providing full cooperation, assistance, and access to persons that are authorized to conduct response actions or natural resource restoration; (4) complying with information requests and administrative subpoenas; and (5) providing legally required notices.

1. *Land Use Restrictions and Institutional Controls*

The bona fide prospective purchaser, contiguous property owner, and innocent landowner provisions all require compliance with the following ongoing obligations as a condition for maintaining a landowner liability protection:

> the person is in compliance with any land use restrictions established or relied on in connection with the response action and
>
> the person does not impede the effectiveness or integrity of any institutional control employed in connection with a response action.

CERCLA §§ 101(40)(F), 107(q)(1)(A)(V), 101(35)(A). Initially, there are two important points worth noting about these provisions. First, because institutional controls are often used to implement land use restrictions, failing to comply with a land use restriction may also impede the effectiveness or integrity of an institutional control, and vice versa. As explained below, however, these two provisions do set forth distinct requirements. Second, these are ongoing obligations and, therefore, EPA believes the statute requires bona fide prospective purchasers, contiguous property owners, and innocent landowners to comply with land use restrictions and to implement institutional controls even if the restrictions or institutional controls were not in place at the time the person purchased the property.

Institutional controls are administrative and legal controls that minimize the potential for human exposure to contamination and protect the integrity of remedies by limiting land or

resource use, providing information to modify behavior, or both.[6] For example, an institutional control might prohibit the drilling of a drinking water well in a contaminated aquifer or disturbing contaminated soils. EPA typically uses institutional controls whenever contamination precludes unlimited use and unrestricted exposure at the property. Institutional controls are often needed both before and after completion of the remedial action. Also, institutional controls may need to remain in place for an indefinite duration and, therefore, generally need to survive changes in property ownership (i.e., run with the land) to be legally and practically effective.

Generally, EPA places institutional controls into four categories:

(1) governmental controls (e.g., zoning);
(2) proprietary controls (e.g., covenants, easements);
(3) enforcement documents (e.g., orders, consent decrees); and
(4) informational devices (e.g., land record/deed notices).

Institutional controls often require a property owner to take steps to implement the controls, such as conveying a property interest (e.g., an easement or restrictive covenant) to another party such as a governmental entity, thus providing that party with the right to enforce a land use restriction; applying for a zoning change; or recording a notice in the land records.

Because institutional controls are tools used to limit exposure to contamination or protect a remedy by limiting land use, they are often used to implement or establish land use restrictions relied on in connection with the response action. However, the Brownfields Amendments require compliance with land use restrictions relied on in connection with the response action, even if those restrictions have not been properly implemented through the use of an enforceable institutional control. Generally, a land use restriction may be considered "relied on" when the restriction is identified as a component of the remedy. Land use restrictions relied on in connection with a response action may be documented in several places depending on the program under which the response action was conducted, including: a risk assessment; a remedy decision document; a remedy design document; a permit, order, or consent decree; under some state response programs, a statute (*e.g.*, no groundwater wells when relying on natural attenuation); or, in other documents developed in conjunction with a response action.

An institutional control may not serve the purpose of implementing a land use restriction for a variety of reasons, including: (1) the institutional control is never, or has yet to be, implemented; (2) the property owner or other persons using the property impede the effectiveness of the institutional controls in some way and the party responsible for enforcement of the institutional controls neglects to take sufficient measures to bring those persons into compliance; or (3) a court finds the controls to be unenforceable. For example, a chosen remedy might rely on an ordinance that prevents groundwater from being used as drinking water. If the local government failed to enact the ordinance, later changed the ordinance to allow for drinking

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[6] For additional information on institutional controls, see "Institutional Controls: A Site Manager's Guide to Identifying, Evaluating, and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups," September 2000, (OSWER Directive 9355.0-74FS-P).

water use, or failed to enforce the ordinance, a landowner is still required to comply with the groundwater use restriction identified as part of the remedy to maintain its landowner liability protection. Unless authorized by the regulatory agency responsible for overseeing the remedy, if the landowner fails to comply with a land use restriction relied on in connection with a response action, the owner will forfeit the liability protection and EPA may use its CERCLA authorities to order the owner to remedy the violation, or EPA may remedy the violation itself and seek cost recovery from the noncompliant landowner.

In order to meet the statutory criteria of a bona fide prospective purchaser, contiguous property owner, or innocent landowner, a party may not impede the effectiveness or integrity of any institutional control employed in connection with a response action. See CERCLA §§ 101(40)(F)(ii), 107(q)(1)(A)(v)(II), 101(35)(A)(iii). Impeding the effectiveness or integrity of an institutional control does not require a physical disturbance or disruption of the land. A landowner could jeopardize the reliability of an institutional control through actions short of violating restrictions on land use. In fact, not all institutional controls actually restrict the use of land. For example, EPA and State programs often use notices to convey information regarding contamination on site rather than actually restricting the use. To do this, EPA or a State may require a notice to be placed in the land records. If a landowner removed the notice, the removal would impede the effectiveness of the institutional control. A similar requirement is for a landowner to give notice of any institutional controls on the property to a purchaser of the property. Failure to give this notice may impede the effectiveness of the control. Another example of impeding the effectiveness of an institutional control would be if a landowner applies for a zoning change or variance when the current designated use of the property was intended to act as an institutional control. Finally, EPA might also consider a landowner's refusal to assist in the implementation of an institutional control employed in connection with the response action, such as not recording a deed notice or not agreeing to an easement or covenant, to constitute a violation of the requirement not to impede the effectiveness or integrity of an institutional control.[7]

An owner may seek changes to land use restrictions and institutional controls relied on in connection with a response action by following procedures required by the regulatory agency responsible for overseeing the original response action. Certain restrictions and institutional controls may not need to remain in place in perpetuity. For example, changed site conditions, such as natural attenuation or additional cleanup, may alleviate the need for restrictions or institutional controls. If an owner believes changed site conditions warrant a change in land or resource use or is interested in performing additional response actions that would eliminate the need for particular restrictions and controls, the owner should review and follow the appropriate regulatory agency procedures prior to undertaking any action that may violate the requirements of this provision.

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[7] This may also constitute a violation of the ongoing obligation to provide full cooperation, assistance, and access. CERCLA §§ 101(40)(E), 107(q)(1)(A)(iv), 101(35)(A).

2. *Reasonable Steps*

a. Overview

Congress, in enacting the landowner liability protections, included the condition that bona fide prospective purchasers, contiguous property owners, and innocent landowners take "reasonable steps" with respect to hazardous substance releases to do all of the following:

- Stop continuing releases,
- Prevent threatened future releases, and
- Prevent or limit human, environmental, or natural resource exposure to earlier hazardous substance releases.

CERCLA §§ 101(40)(D), 107(q)(1)(A)(iii), 101(35)(B)(i)(II).[8] Congress included this condition as an incentive for certain owners of contaminated properties to avoid CERCLA liability by, among other things, acting responsibly where hazardous substances are present on their property. In adding this new requirement, Congress adopted an approach that is consonant with traditional common law principles and the existing CERCLA "due care" requirement.[9]

By making the landowner liability protections subject to the obligation to take "reasonable steps," EPA believes Congress intended to balance the desire to protect certain landowners from CERCLA liability with the need to ensure the protection of human health and the environment. In requiring reasonable steps from parties qualifying for landowner liability protections, EPA believes Congress did not intend to create, as a general matter, the same types of response obligations that exist for a CERCLA liable party (e.g., removal of contaminated soil,

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[8] CERCLA § 101(40)(D), the bona fide prospective purchaser reasonable steps provision, provides: "[t]he person exercises appropriate care with respect to hazardous substances found at the facility by taking reasonable steps to— (i) stop any continuing release; (ii) prevent any threatened future release; and (iii) prevent or limit human, environmental, or natural resource exposure to any previously released hazardous substance."

CERCLA § 107(q)(1)(A), the contiguous property owner reasonable steps provision, provides: "the person takes reasonable steps to— (I) stop any continuing release; (II) prevent any threatened future release; and (III) prevent or limit human, environmental, or natural resource exposure to any hazardous substance released on or from property owned by that person."

CERCLA § 101(35)(B)(II), the innocent landowner reasonable steps provision, provides: "the defendant took reasonable steps to— (aa) stop any continuing release; (bb) prevent any threatened future release; and (cc) prevent or limit any human, environmental, or natural resource exposure to any previously released hazardous substance."

[9] See innocent landowner provision, CERCLA § 107(b)(3)(a).

extraction and treatment of contaminated groundwater).[10] Indeed, the contiguous property owner provision's legislative history states that absent "exceptional circumstances . . . , these persons are not expected to conduct ground water investigations or install remediation systems, or undertake other response actions that would be more properly paid for by the responsible parties who caused the contamination." S. Rep. No. 107-2, at 11 (2001). In addition, the Brownfields Amendments provide that contiguous property owners are generally not required to conduct groundwater investigations or to install ground water remediation systems. CERCLA § 107(q)(1)(D).[11] Nevertheless, it seems clear that Congress also did not intend to allow a landowner to ignore the potential dangers associated with hazardous substances on its property.

Although the reasonable steps legal standard is the same for the three landowner provisions, the obligations may differ to some extent because of other differences among the three statutory provisions. For example, as noted earlier, one of the conditions is that a person claiming the status of a bona fide prospective purchaser, contiguous property owner, or innocent landowner must have "carried out all appropriate inquiries" into the previous ownership and uses of the facility in accordance with generally accepted good commercial and customary standards and practices. CERCLA §§ 101(40)(B), 107(q)(1)(A)(viii), 101(35)(B). However, for a contiguous property owner or innocent landowner, knowledge of contamination defeats eligibility for the liability protection. A bona fide prospective purchaser may purchase with knowledge of the contamination and still be eligible for the liability protection. Thus, only the bona fide prospective purchaser could purchase a contaminated property that is, for example, on CERCLA's National Priorities List[12] or is undergoing active cleanup under an EPA or State

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[10] There could be unusual circumstances where the reasonable steps required of a bona fide prospective purchaser, contiguous property owner, or innocent landowner would be akin to the obligations of a potentially responsible party (e.g., the only remaining response action is institutional controls or monitoring, the benefit of the response action will inure primarily to the landowner, or the landowner is the only person in a position to prevent or limit an immediate hazard). This may be more likely to arise in the context of a bona fide prospective purchaser as the purchaser may buy the property with knowledge of the contamination.

[11] CERCLA § 107(q)(1)(D) provides:

> GROUND WATER. - With respect to a hazardous substance from one or more sources that are not on the property of a person that is a contiguous property owner that enters ground water beneath the property of the person solely as a result of subsurface migration in an aquifer, subparagraph (A)(iii) shall not require the person to conduct ground water investigations or to install ground water remediation systems, except in accordance with the policy of the Environmental Protection Agency concerning owners of property containing contaminated aquifers, dated May 24, 1995.

[12] The National Priorities List is "the list compiled by EPA pursuant to CERCLA § 105, of uncontrolled hazardous substance releases in the United States that are priorities for long-term remedial evaluation and response." 40 C.F.R. § 300.5 (2001).

cleanup program, and still maintain his liability protection.

The pre-purchase "appropriate inquiry" by the bona fide prospective purchaser will most likely inform the bona fide prospective purchaser as to the nature and extent of contamination on the property and what might be considered reasonable steps regarding the contamination - - how to stop continuing releases, prevent threatened future releases, and prevent or limit human, environmental, and natural resource exposures. Knowledge of contamination and the opportunity to plan prior to purchase should be factors in evaluating what are reasonable steps, and could result in greater reasonable steps obligations for a bona fide prospective purchaser.[13] Because the pre-purchase "appropriate inquiry" performed by a contiguous property owner or innocent landowner must result in no knowledge of the contamination for the landowner liability protection to apply, the context for evaluating reasonable steps for such parties is different. That is, reasonable steps in the context of a purchase by a bona fide prospective purchaser may differ from reasonable steps for the other protected landowner categories (who did not have knowledge or an opportunity to plan prior to purchase). Once a contiguous property owner or innocent landowner learns that contamination exists on his property, then he must take reasonable steps considering the available information about the property contamination.

The required reasonable steps relate only to responding to contamination for which the bona fide prospective purchaser, contiguous property owner, or innocent landowner is not responsible. Activities on the property subsequent to purchase that result in new contamination can give rise to full CERCLA liability. That is, more than reasonable steps will likely be required from the landowner if there is new hazardous substance contamination on the landowner's property for which the landowner is liable. See, e.g., CERCLA § 101(40)(A) (requiring a bona fide prospective purchaser to show "[a]ll disposal of hazardous substances at the facility occurred before the person acquired the facility").

As part of the third party defense that pre-dates the Brownfields Amendments and continues to be a distinct requirement for innocent landowners, CERCLA requires the exercise of "due care with respect to the hazardous substance concerned, taking into consideration the characteristics of such hazardous substance, in light of all the relevant facts and circumstances." CERCLA § 107(b)(3)(a). The due care language differs from the Brownfields Amendments' new reasonable steps language. However, the existing case law on due care provides a reference point for evaluating the reasonable steps requirement. When courts have examined the due care requirement in the context of the pre-existing innocent landowner defense, they have generally concluded that a landowner should take some positive or affirmative step(s) when confronted with hazardous substances on its property. Because the due care cases cited in Attachment B (see Section III.B.2.b "Questions and Answers," below) interpret the due care statutory language and not the reasonable steps statutory language, they are provided as a reference point for the reasonable steps analysis, but are not intended to define reasonable steps.

The reasonable steps determination will be a site-specific, fact-based inquiry. That

[13] As noted earlier, section 107(r)(2) provides EPA with a windfall lien on the property.

inquiry should take into account the different elements of the landowner liability protections and should reflect the balance that Congress sought between protecting certain landowners from CERCLA liability and assuring continued protection of human health and the environment. Although each site will have its own unique aspects involving individual site analysis, Attachment B provides some questions and answers intended as general guidance on the question of what actions may constitute reasonable steps.

b. Site-Specific Comfort/Status Letters Addressing Reasonable Steps

Consistent with its "Policy on the Issuance of Comfort/Status Letters," ("1997 Comfort/Status Letter Policy"), 62 Fed. Reg. 4,624 (1997), EPA may, in its discretion, provide a comfort/status letter addressing reasonable steps at a specific site, upon request. EPA anticipates that such letters will be limited to sites with significant federal involvement such that the Agency has sufficient information to form a basis for suggesting reasonable steps (e.g., the site is on the National Priorities List or EPA has conducted or is conducting a removal action on the site). In addition, as the 1997 Comfort/Status Letter Policy provides, "[i]t is not EPA's intent to become involved in typical real estate transactions. Rather, EPA intends to limit the use of . . . comfort to where it may facilitate the cleanup and redevelopment of brownfields, where there is the realistic perception or probability of incurring Superfund liability, and where there is no other mechanism available to adequately address the party's concerns." Id. In its discretion, a Region may conclude in a given case that it is not necessary to opine about reasonable steps because it is clear that the landowner does not or will not meet other elements of the relevant landowner liability protection. A sample reasonable steps comfort/status letter is attached to this memorandum (see Attachment C).

The 1997 Comfort/Status Letter Policy recognizes that, at some sites, the state has the lead for day-to-day activities and oversight of a response action, and the Policy includes a "Sample State Action Letter." For reasonable steps inquiries at such sites, Regions should handle responses consistent with the existing 1997 Comfort/Status Letter Policy. In addition, where appropriate, if EPA has had the lead at a site with respect to response actions (e.g., EPA has conducted a removal action at the site), but the state will be taking over the lead in the near future, EPA should coordinate with the state prior to issuing a comfort/status letter suggesting reasonable steps at the site.

3. *Cooperation, Assistance, and Access*

The Brownfields Amendments require that bona fide prospective purchasers, contiguous property owners, and innocent landowners provide full cooperation, assistance, and access to persons who are authorized to conduct response actions or natural resource restoration at the vessel or facility from which there has been a release or threatened release, including the cooperation and access necessary for the installation, integrity, operation, and maintenance of any complete or partial response action or natural resource restoration at the vessel or facility. CERCLA §§ 101(40)(E), 107(q)(1)(A)(iv), 101(35)(A).

4. *Compliance with Information Requests and Administrative Subpoenas*

The Brownfields Amendments require bona fide prospective purchasers and contiguous property owners to be in compliance with, or comply with, any request for information or administrative subpoena issued by the President under CERCLA. CERCLA §§ 101(40)(G), 107(q)(1)(A)(vi). In particular, EPA expects timely, accurate, and complete responses from all recipients of section 104(e) information requests. As an exercise of its enforcement discretion, EPA may consider a person who has made an inconsequential error in responding (e.g., the person sent the response to the wrong EPA address and missed the response deadline by a day), a bona fide prospective purchaser or contiguous property owner, as long as the landowner also meets the other conditions of the applicable landowner liability protection.

5. *Providing Legally Required Notices*

The Brownfields Amendments subject bona fide prospective purchasers and contiguous property owners to the same "notice" requirements. Both provisions mandate, in pertinent part, that "[t]he person provides all legally required notices with respect to the discovery or release of any hazardous substances at the facility." CERCLA §§ 101(40)(C), 107(q)(1)(A)(vii). EPA believes that Congress' intent in including this as an ongoing obligation was to ensure that EPA and other appropriate entities are made aware of hazardous substance releases in a timely manner.

"Legally required notices" may include those required under federal, state, and local laws. Examples of federal notices that may be required include, but are not limited to, those under: CERCLA § 103 (notification requirements regarding released substances); EPCRA § 304 ("emergency notification"); and RCRA § 9002 (notification provisions for underground storage tanks). The bona fide prospective purchaser and contiguous property owner have the burden of ascertaining what notices are legally required in a given instance and of complying with those notice requirements. Regions may require these landowners to self-certify that they *have provided* (in the case of contiguous property owners), or *will provide* within a certain number of days of purchasing the property (in the case of bona fide prospective purchasers), all legally required notices. Such self-certifications may be in the form of a letter signed by the landowner as long as the letter is sufficient to satisfy EPA that applicable notice requirements have been met. Like many of the other common elements discussed in this memorandum, providing legally required notices is an ongoing obligation of any landowner desiring to maintain its status as a bona fide prospective purchaser or contiguous property owner.

IV. Conclusion

Evaluating whether a landowner has met the criteria of a particular landowner provision will require careful, fact-specific analysis by the regions as part of their exercise of enforcement discretion. This memorandum is intended to provide EPA personnel with some general guidance on the common elements of the landowner liability protections. As EPA implements the Brownfields Amendments, it will be critical for the regions to share site-specific experiences and

information pertaining to the common elements amongst each other and with the Office of Site Remediation Enforcement, in order to ensure national consistency in the exercise of the Agency's enforcement discretion. EPA anticipates that its Landowner Liability Protection Subgroup, which is comprised of members from various headquarters offices, the Offices of Regional Counsel, the Office of General Counsel, and the Department of Justice, will remain intact for the foreseeable future and will be available to serve as a clearinghouse for information for the regions on the common elements.

Questions and comments regarding this memorandum or site-specific inquiries should be directed to Cate Tierney, in OSRE's Regional Support Division (202-564-4254, Tierney.Cate@EPA.gov), or Greg Madden, in OSRE's Policy & Program Evaluation Division (202-564-4229, Madden.Gregory@EPA.gov).

V. Disclaimer

This memorandum is intended solely for the guidance of employees of EPA and the Department of Justice and it creates no substantive rights for any persons. It is not a regulation and does not impose legal obligations. EPA will apply the guidance only to the extent appropriate based on the facts.

Attachments

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Attachment A

Chart Summarizing Applicability of "Common Elements" to Bona Fide Prospective Purchasers, Contiguous Property Owners, and Section 101(35)(A)(i) Innocent Landowners

Common Element among the Brownfields Amendments Landowner Provisions	**Bona Fide Prospective Purchaser**	**Contiguous Property Owner**	**Section 101 (35)(A)(i) Innocent Landowner**
All Appropriate Inquiry			
No affiliation demonstration			
Compliance with land use restrictions and institutional controls			
Taking reasonable steps			
Cooperation, assistance, access			
Compliance with information requests and administrative subpoenas			
Providing legally required notices			

Although the innocent landowner provision does not contain this "affiliation" language, in order to meet the statutory criteria of the innocent landowner liability protection, a person must establish by a preponderance of the evidence that the act or omission that caused the release or threat of release of hazardous substances and the resulting damages were caused by a third party with whom the person does not have an employment, agency, or contractual relationship. CERCLA § 107(b)(3). Contractual relationship is defined in section 101(35)(A).

Compliance with information requests and administrative subpoenas is not specified as a statutory criterion for achieving and maintaining the section 101(35)(A)(i) innocent landowner liability protection. However, CERCLA requires compliance with administrative subpoenas from all persons, and timely, accurate, and complete responses from all recipients of EPA information requests.

Provision of legally required notices is not specified as a statutory criterion for achieving and maintaining the section 101(35)(A)(i) innocent landowner liability protection. These landowners may, however, have notice obligations under federal, state and local laws.

Attachment B

Reasonable Steps Questions and Answers

The "reasonable steps" required of a bona fide prospective purchaser, contiguous property owner, or section 101(35)(A)(i) innocent landowner under CERCLA §§ 101(40)(D), 107(q)(1)(A)(iii), and 101(35)(B)(i)(II), will be a site-specific, fact-based inquiry. Although each site will have its own unique aspects involving individual site analysis, below are some questions and answers intended to provide general guidance on the question of what actions may constitute reasonable steps. The answers provide a specific response to the question posed, without identifying additional actions that might be necessary as reasonable steps or actions that may be required under the other statutory conditions for each landowner provision (e.g., providing cooperation and access). In addition, the answers do not address actions that may be required under other federal statutes (e.g., the Resource Conservation and Recovery Act, 42 U.S.C. § 6901 *et seq*.; the Clean Water Act, 33 U.S.C. § 1251, *et seq.*; and the Toxic Substances Control Act, 15 U.S.C. § 2601, *et seq.*), and do not address landowner obligations under state statutory or common law.[14]

Notification

Q1: If a person conducts "all appropriate inquiry" with respect to a property where EPA has conducted a removal action, discovers hazardous substance contamination on the property that is unknown to EPA, and then purchases the property, is notification to EPA or the state about the contamination a reasonable step?

A1: Yes. First, bona fide prospective purchasers may have an obligation to provide notice of the discovery or release of a hazardous substance under the legally required notice provision, CERCLA § 101(40)(C). Second, even if not squarely required by the notice conditions, providing notice of the contamination to appropriate governmental authorities would be a reasonable step in order to prevent a "threatened future release" and "prevent or limit . . . exposure." Congress specifically identified "notifying appropriate Federal, state, and local officials" as a typical reasonable step. S. Rep. No.107-2, at 11 (2001); see also, Bob's Beverage Inc. v. Acme, Inc., 169 F. Supp. 2d 695, 716 (N.D. Ohio 1999) (failure to timely notify EPA and Ohio EPA of groundwater contamination was factor in conclusion that party failed to exercise due care), *aff'd*, 264 F. 3d 692 (6th Cir. 2001). It should be noted that the bona fide prospective purchaser provision is the only one of the three landowner provisions where a person can purchase property with knowledge that it is contaminated and still qualify for the landowner liability protection.

[14] The Brownfields Amendments did not alter CERCLA § 114(a), which provides: "[n]othing in this chapter shall be construed or interpreted as preempting any State from imposing any additional liability or requirements with respect to the release of hazardous substances within such State."

Site Restrictions

Q2: Where a property owner discovers unauthorized dumping of hazardous substances on a portion of her property, are site access restrictions reasonable steps?

A2: Site restrictions are likely appropriate as a first step, once the dumping is known to the owner. Reasonable steps include preventing or limiting "human, environmental, or natural resource exposure" to hazardous substances. CERCLA §§ 101(40)(D)(iii), 107(q)(1)(A)(iii)(III), 101(35)(B)(i)(II)(cc). The legislative history for the contiguous property owner provision specifically notes that "erecting and maintaining signs or fences to prevent public exposure" may be typical reasonable steps. S. Rep. No. 107-2, at 11 (2001); see also, Idylwoods Assoc. v. Mader Capital, Inc., 915 F. Supp. 1290, 1301 (W.D.N.Y. 1996) (failure to restrict access by erecting signs or hiring security personnel was factor in evaluating due care), *aff'd on reh'g*, 956 F. Supp. 410, 419-20 (W.D.N.Y. 1997); New York v. Delmonte, No. 98-CV-0649E, 2000 WL 432838, *4 (W.D.N.Y. Mar. 31, 2000) (failure to limit access despite knowledge of trespassers was not due care).

Containing Releases or Threatened Releases

Q3: If a new property owner discovers some deteriorating 55 gallon drums containing unknown material among empty drums in an old warehouse on her property, would segregation of the drums and identification of the material in the drums constitute reasonable steps?

A3: Yes, segregation and identification of potential hazards would likely be appropriate first steps. Reasonable steps must be taken to "prevent any threatened future release." CERCLA §§ 101(40)(D)(ii), 107(q)(1)(A)(iii)(II), 101(35)(B)(i)(II)(bb). To the extent the drums have the potential to leak, segregation and containment (e.g., drum overpack) would prevent mishandling and releases to the environment. For storage and handling purposes, an identification of the potential hazards from the material will likely be necessary. Additional identification steps would likely be necessary for subsequent disposal or resale if the material had commercial value.

Q4: If a property owner discovers that the containment system for an on-site waste pile has been breached, do reasonable steps include repairing the breach?

A4: One of the reasonable steps obligations is to "stop any continuing release." CERCLA §§ 101(40)(D)(i), 107(q)(1)(A)(iii)(I), 101(35)(B)(i)(II)(aa). In general, the property owner should take actions to prevent contaminant migration where there is a breach from an existing containment system. Both Congress and the courts have identified maintenance of hazardous substance migration controls as relevant property owner obligations. For example, in discussing contiguous property owners' obligations for migrating groundwater plumes, Congress identified "maintaining any existing barrier or other elements of a response action on their property that

address the contaminated plume" as a typical reasonable step. S. Rep. No. 107-2, at 11 (2001); see also, Franklin County Convention Facilities Auth. v. American Premier Underwriters, Inc., 240 F.3d 534, 548 (6th Cir. 2001) (failure to promptly erect barrier that allowed migration was not due care); United States v. DiBiase Salem Realty Trust, No. Civ. A. 91-11028-MA, 1993 WL 729662, *7 (D. Mass. Nov. 19, 1993) (failure to reinforce waste pit berms was factor in concluding no due care), *aff'd*, 45 F.3d 541, 545 (1st Cir. 1995). In many instances, the current property owner will have responsibility for maintenance of the containment system. If the property owner has responsibility for maintenance of the system as part of her property purchase, then she should repair the breach. In other instances, someone other than the current landowner may have assumed that responsibility (e.g., a prior owner or other liable parties that signed a consent decree with EPA and/or a State). If someone other than the property owner has responsibility for maintenance of the containment system pursuant to a contract or other agreement, then the question is more complicated. At a minimum, the current owner should give notice to the person responsible for the containment system and to the government. Moreover, additional actions to prevent contaminant migration would likely be appropriate.

Q5: If a bona fide prospective purchaser buys property at a Superfund site where part of the approved remedy is an asphalt parking lot cap, but the entity or entities responsible for implementing the remedy (e.g., PRPs who signed a consent decree) are unable to repair the deteriorating cap (e.g., the PRPs are now defunct), should the bona fide prospective purchaser repair the deteriorating asphalt parking lot cap as reasonable steps?

A5: Taking "reasonable steps" includes steps to: "prevent or limit any human, environmental, or natural resource exposure to any previously released hazardous substances." CERCLA §§ 101(40)(D)(iii), 107(q)(1)(A)(iii)(III), 101(35)(B)(i)(II)(cc). In this instance, the current landowner may be in the best position to identify and quickly take steps to repair the asphalt cap and prevent additional exposures.

Remediation

Q6: If a property is underlain by contaminated groundwater emanating from a source on a contiguous or adjacent property, do reasonable steps include remediating the groundwater?

A6: Generally not. Absent exceptional circumstances, EPA will not look to a landowner whose property is not a source of a release to conduct groundwater investigations or install groundwater remediation systems. Since 1995, EPA's policy has been that, in the absence of exceptional circumstances, such a property owner did not have "to take any affirmative steps to investigate or prevent the activities that gave rise to the original release" in order to satisfy the innocent landowner due care requirement. See May 24, 1995 "Policy Toward Owners of Property Containing Contaminated Aquifers." ("1995 Contaminated Aquifers Policy"). In the Brownfields Amendments, Congress explicitly identified this policy in noting that reasonable

steps for a contiguous property owner "shall not require the person to conduct groundwater investigations or to install groundwater remediation systems," except in accordance with that policy. See CERCLA § 107(q)(1)(D). The policy does not apply "where the property contains a groundwater well, the existence or operation of which may affect the migration of contamination in the affected area." 1995 Contaminated Aquifers Policy, at 5. In such instances, a site-specific analysis should be used in order to determine reasonable steps. In some instances, reasonable steps may simply mean operation of the groundwater well consistent with the selected remedy. In other instances, more could be required.

Q7: If a protected landowner discovers a previously unknown release of a hazardous substance from a source on her property, must she remediate the release?

A7: Provided the landowner is not otherwise liable for the release from the source, she should take some affirmative steps to "stop the continuing release," but EPA would not, absent unusual circumstances, look to her for performance of complete remedial measures. However, notice to appropriate governmental officials and containment or other measures to mitigate the release would probably be considered appropriate. Compare Lincoln Properties, Ltd. v. Higgins, 823 F. Supp. 1528, 1543-44 (E.D. Calif. 1992) (sealing sewer lines and wells and subsequently destroying wells to protect against releases helped establish party exercised due care); Redwing Carriers, Inc. v. Saraland Apartments, 94 F.3d 1489, 1508 (11th Cir. 1996) (timely development of maintenance plan to remove tar seeps was factor in showing due care was exercised); New York v. Lashins Arcade Co., 91 F.3d 353 (2nd Cir. 1996) (instructing tenants not to discharge hazardous substances into waste and septic systems, making instructions part of tenancy requirements, and inspecting to assure compliance with this obligation, helped party establish due care); with Idylwoods Assoc. v. Mader Capital, Inc., 956 F. Supp. 410, 419-20 (W.D.N.Y. 1997) (property owner's decision to do nothing resulting in spread of contamination to neighboring creek was not due care); Kerr-McGee Chem. Corp. v. Lefton Iron & Metal Co., 14 F.3d 321, 325 (7th Cir. 1994) (party that "made no attempt to remove those substances or to take any other positive steps to reduce the threat posed" did not exercise due care). As noted earlier, if the release is the result of a disposal after the property owner's purchase, then she may be required to undertake full remedial measures as a CERCLA liable party. Also, if the source of the contamination is on the property, then the property owner will not qualify as a contiguous property owner but may still qualify as an innocent landowner or a bona fide prospective purchaser.

Site Investigation

Q8: If a landowner discovers contamination on her property, does the obligation to take reasonable steps require her to investigate the extent of the contamination?

A8: Generally, where the property owner is the first to discover the contamination, she should

take certain basic actions to assess the extent of contamination. Absent such an assessment, it will be very difficult to determine what reasonable steps will stop a continuing release, prevent a threatened future release, or prevent or limit exposure. While a full environmental investigation may not be required, doing nothing in the face of a known or suspected environmental hazard would likely be insufficient. See, e.g., United States v. DiBiase Salem Realty Trust, 1993 WL 729662, *7 (failure to investigate after becoming aware of dangerous sludge pits was factor in concluding party did not exercise due care), *aff'd*, 45 F.3d 541, 545 (1st Cir. 1995); United States v. A&N Cleaners and Launderers, Inc., 854 F. Supp. 229 (S.D.N.Y. 1994) (dictum) (failing to assess environmental threats after discovery of disposal would be part of due care analysis). Where the government is actively investigating the property, the need for investigation by the landowner may be lessened, but the landowner should be careful not to rely on the fact that the government has been notified of a hazard on her property as a shield to potential liability where she fails to conduct any investigation of a known hazard on her property. Compare New York v. Lashins Arcade Co., 91 F.3d 353, 361 (2nd Cir. 1996) (no obligation to investigate where RI/FS already commissioned) with DiBiase Salem Realty Trust, 1993 WL 729662, *7 (State Department of Environmental Quality knowledge of hazard did not remove owner's obligation to make some assessment of site conditions), *aff'd*, 45 F.3d 541, 545 (1st Cir. 1995).

Performance of EPA Approved Remedy

Q9: If a new purchaser agrees to assume the obligations of a prior owner PRP, as such obligations are defined in an order or consent decree issued or entered into by the prior owner and EPA, will compliance with those obligations satisfy the reasonable steps requirement?

A9: Yes, in most cases compliance with the obligations of an EPA order or consent decree will satisfy the reasonable steps requirement so long as the order or consent decree comprehensively addresses the obligations of the prior owner through completion of the remedy. It should be noted that not all orders or consent decrees identify obligations through completion of the remedy and some have open-ended cleanup obligations.

Attachment C

Sample Federal Superfund Interest Reasonable Steps Letter

The sample comfort/status letter below may be used in the exercise of enforcement discretion where EPA has sufficient information regarding the site to have assessed the hazardous substance contamination and has enough information about the property to make suggestions as to steps necessary to satisfy the "reasonable steps" requirement. In addition, like any comfort/status letter, the letters should be provided in accordance with EPA's "Comfort/Status Letter Policy." That is, they are not necessary or appropriate for purely private real estate transactions. Such letters may be issued when: (1) there is a realistic perception or probability of incurring Superfund liability, (2) such comfort will facilitate the cleanup and redevelopment of a brownfield property, (3) there is no other mechanism to adequately address the party's concerns, and (4) EPA has sufficient information about the property to provide a basis for suggesting reasonable steps.

[Insert Addressee]

Re: **[Insert Name or Description of Property]**

Dear **[insert name of requester]:**

I am writing in response to your letter dated **[insert date]** concerning the property referenced above. As you know, the **[insert name]** property is located within or near the **[insert name of CERCLIS site.]** EPA is currently **[insert description of action EPA is taking or plans to take and any contamination problem.]**

The **[bona fide prospective purchaser, contiguous property owner, or innocent landowner]** provision states that a person meeting the criteria of **[insert section]** is protected from CERCLA liability. **[For bona fide prospective purchaser only, it may be appropriate to insert following language: To the extent EPA's response action increases the fair market value of the property, EPA may have a windfall lien on the property. The windfall lien is limited to the increase in fair market value attributable to EPA's response action, capped by EPA's unrecovered response costs.]** (I am enclosing a copy of the relevant statutory provisions for your reference.) To qualify as a **[bona fide prospective purchaser, contiguous property owner, or section 101(35)(A)(i) innocent landowner]**, a person must (among other requirements) take "reasonable steps" with respect to stopping continuing releases, preventing threatened future releases, and preventing or limiting human, environmental, or natural resources exposure to earlier releases. You have asked what actions you must take, as the **[owner or prospective owner]** of the property, to satisfy the "reasonable steps" criterion.

As noted above, EPA has conducted a **[insert most recent/relevant action to "reasonable steps" inquiry taken by EPA]** at **[insert property name]** and has identified a

number of environmental concerns. Based on the information EPA has evaluated to date, EPA believes that, for an owner of the property, the following would be appropriate reasonable steps with respect to the hazardous substance contamination found at the property:

[insert paragraphs outlining reasonable steps with respect to each environmental concern]

This letter does not provide a release from CERCLA liability, but only provides information with respect to reasonable steps based on the information EPA has available to it. This letter is based on the nature and extent of contamination known to EPA at this time. If additional information regarding the nature and extent of hazardous substance contamination at **[insert property name]** becomes available, additional actions may be necessary to satisfy the reasonable steps criterion. In particular, if new areas of contamination are identified, you should ensure that reasonable steps are undertaken. As the property owner, you should ensure that you are aware of the condition of your property so that you are able to take reasonable steps with respect to any hazardous substance contamination at or on the property.

Please note that the **[bona fide prospective purchaser, contiguous property owner, or innocent landowner]** provision has a number of conditions in addition to those requiring the property owner to take reasonable steps. Taking reasonable steps and many of the other conditions are continuing obligations of the **[bona fide prospective purchaser, contiguous property owner, or section 101(35)(A)(i) innocent landowner]**. You will need to assess whether you satisfy each of the statutory conditions for the **[bona fide prospective purchaser, contiguous property owner, or innocent landowner]** provision and continue to meet the applicable conditions.

EPA hopes this information is useful to you. If you have any questions, or wish to discuss this letter, please feel free to contact **[insert EPA contact and address]**.

Sincerely,

[insert name of EPA contact]

Comparison of the Final All Appropriate Inquiries Standard and the ASTM E1527-00 Environmental Site Assessment Standard

INTRODUCTION

On January 11, 2002, President Bush signed into law the Small Business Liability Relief and Brownfields Revitalization Act (the Brownfields Amendments), which amended the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9601 et seq. The Brownfields Amendments require the Environmental Protection Agency (EPA) to develop regulations establishing federal standards and practices for conducting all appropriate inquiries. Congress included in the Brownfields Amendments a list of criteria that the Agency must address in the regulations (section 101(35)(B)(iii) of CERCLA).

Subtitle B of Title II of the Brownfields Amendments revised the liability provisions of CERCLA Section 101(35) by clarifying the requirements necessary to establish the innocent landowner defense under CERCLA. In addition, the Brownfields Amendments amended CERCLA by providing additional liability protections for contiguous property owners and bona fide prospective purchasers. For the first time since the enactment of CERCLA in 1980, a person may purchase property with the knowledge that the property is contaminated without being held potentially liable for the cleanup of the contamination. To claim protection from liability, a prospective property owner must comply with the statutory requirements for obtaining the contiguous property owner or bona fide prospective purchaser liability defenses. Among these is the requirement to, prior to the date of acquisition of the property, undertake "all appropriate inquiries" into prior ownership and uses of a property.

The all appropriate inquiries requirements are applicable to any public or private party who may potentially claim protection from CERCLA liability as an innocent landowner, a bona fide prospective purchaser, or a contiguous property owner. In addition, parties receiving grants to conduct characterizations or assessments of brownfields properties under EPA's Brownfields Grant program must conduct the property characterization and assessment in compliance with the all appropriate inquiries requirements.

The purpose of this document is to present a comparison of the all appropriate inquiries requirements included in the final federal regulations and the requirements of the interim standard, the ASTM E1527-00 standard for Phase I environmental site assessments. The ASTM E1527-00 standard is the most prevalent industry standard for conducting Phase I environmental site assessments. This document highlights the main differences between the requirements of the final regulation and the ASTM E1527-00 standard for Phase I environmental site assessments.

Please note that in conjunction with the development of EPA's final rule setting federal standards for the conduct of all appropriate inquiries, ASTM International updated its E1527-00 standard. The new ASTM E1527-05 Phase I Environmental Site Assessment Standard is consistent and compliant with EPA's final rule and may be used to comply with the provisions of the all appropriate inquiries final rule. The differences outlined below apply only to the ASTM E1527-00 standard and are provided to assist the regulatory community in understanding the incremental differences between the requirements of the final rule and the previous ASTM

E1527 standard, which was the interim standard designated by the Brownfields Law. The differences discussed below are not applicable to the newly revised ASTM E1527-05 standard.

CROSSWALK LINKING THE FINAL AAI STANDARD AND THE ASTM E1527-00

To facilitate comparison between the two standards, Exhibit 1 presents a crosswalk linking the sections of all appropriate inquiries final rule with the relevant or corresponding sections of the ASTM E1527-00 standard, the interim standard that will remain in place until the effective date of the final rule. The first column in Exhibit 1 provides a list of the major activities required by the final rule. The second column in Exhibit 1 provides citations to the applicable sections of the regulation where the requirements are discussed. The third column in Exhibit 1 presents the corresponding sections of the ASTM E1527-00 standard. The fourth column in Exhibit 1 provides references to corresponding sections of the revised ASTM standard, ASTM E1527-05.

COMPARISON OF THE FINAL AAI STANDARD AND THE ASTM E1527-00 STANDARD

The final rule setting federal standards for conducting all appropriate inquiries includes requirements that correspond to all the major activities that are currently performed as part of environmental due diligence under the ASTM E1527-00 standard, such as site reconnaissance, record review, interviews, and documentation of environmental conditions. The final rule, however, enhances the inquiries by extending the scope of some of the environmental due diligence activities. In addition, the final rule establishes a more stringent definition of an environmental professional than the ASTM E1527-00 standard. The key differences between the two standards are summarized in Exhibit 2.

Each of the activities presented in Exhibit 2 is addressed in more depth in the sections following Exhibit 2.

Exhibit 1: Crosswalk between the All Appropriate Inquiries Rule and the ASTM E1527-00 Standard

Definitions and Requirements	Final AAI Standard[1]	ASTM E1527-00	ASTM E1527-05
Purpose	*312.1(a)*	*1.1*	*1.1, 6.7*
Applicability	*312.1(b)*	*4.1, 4.2*	*4.1, 4.2, 4.5.3*
Scope	*312.1(c)*	*1*	*1*
Disclosure Obligations	*312.1(d)*	*Not specified*	*Not specified*
Definition of Abandoned Property	*312.10*	*Not defined*	*3.2.1*
Definition of Adjoining Properties	*312.10*	*3.3.2*	*3.2.4*
Definition of Data Gap	*312.10*	*Not defined*	*3.2.20*
Definition of Environmental Professional	*312.10*	*3.3.12*	*3.2.29; Appendix X2*
Definition of Relevant Experience	*312.10*	*Not defined*	*Appendix X2*
Definition of Good Faith	*312.10*	*Not defined*	*3.2.35*
Definition of Institutional Controls	*312.10*	*3.2.17*	*3.2.42*
References	*312.11*	*2*	*2*
List of Components in All Appropriate Inquiries	*312.20(a)*	*6*	*6, 7*
Shelf Life of the Written Report	312.20(a)-(b)	4.6, 4.7	4.6, 4.7
Reports Prepared for Third Parties	*312.20(c)-(d)*	4.7	4.7
Objectives	*312.20(e)*	6.1	7.1
Contaminants of Concern	312.20(e)	1.1	1.1
Performance Factors	*312.20(f)*	7.1	8.1
Data Gaps	312.20(g)	7.3.2	12.7
Interview with Current and Past Owners and Occupants of the Subject Property	*312.23(b), 312.23(c)*	9	10
Interview with Neighboring or Nearby Property Owners or Occupants in the Case of Inquiries Conducted at Abandoned Properties	312.23(d)	Not specified	10.5.5
Review of Historical Sources: Suggested Sources	312.24(a)	7.3.4	8.3.4
Review of Historical Sources: Period to Be Covered	312.24(b)	7.3.2	8.3.2
Searches for Recorded Cleanup Liens	312.25	5.2, 7.3.4.4	6.2, 6.4, 8.3.4.4, 10.8.1.10
Records of Activity and Use Limitations (e.g., Engineering and Institutional Controls)	312.26	5.2	8.3.4.4
Government Records Review: List of Records	312.26(a), 312.26(b)	7.2	8.2
Government Records Review: Search Distance	312.26(c), 312.26(d)	7.1.2, 7.2	8.1.2
Site Visit: Requirements	312.27(a), 312.27(b)	8	9
Site Visit: Limitations	312.27(c)	8.2.4	9.2.4, 9.4
Specialized Knowledge or Experience	312.28	5.3	6.3, 12.3
The Relationship of the Purchase Price to the Value of the Property	312.29	5.4	6.5
Commonly Known or Reasonably Ascertainable Information about the Property	312.30	7.1.4	4.1, 6.6,
The Degree of Obviousness of the Presence or Likely Presence of Contamination	312.31	11.6, 11.7	12.6, 12.8, X.3
Signed Declarations to Be Included in the Written Report	312.21(d)	11.7, 11.11	12.12, 12.13

[1] Citations in column 2 are to Title 40 of the Code of Federal Regulations (e.g. 40 C.F.R. § 312.20).

Exhibit 2: Summary of Main Differences between the Final All Appropriate Inquiries Regulation and the ASTM E1527-00 Standard

Main Differences	Final AAI Standard	ASTM E1527-00
Definition of Environmental Professional	• Specific certification/license, education, and experience requirements • Applies only to individuals supervising all appropriate inquiries	• No specific certification, licensing, education, or experience requirements • Applies to all individuals involved in conducting all appropriate inquiries
Interview with Current Owner and Occupants of the Subject Property	Mandatory	A reasonable attempt must be made to interview key site manager and reasonable number of occupants
Interview with Past Owner and Occupants	Interviews with past owners and occupants must be conducted as necessary to achieve the objectives and performance factors in §§ 312.20(e)-(f)	Not required, but must inquire about past uses of the subject property when interviewing current owner and occupants
Interview with Neighboring or Nearby Property Owners or Occupants	Mandatory at abandoned properties	Discretionary
Review of Historical Sources: period to be covered	From the present back to when the property first contained structures or was used for residential, agricultural, commercial, industrial or governmental purposes	All obvious uses from the present back to the property's first obvious developed use or 1940, whichever is earlier
Records of Activity and Use Limitations (e.g., Engineering and Institutional Controls) and Environmental Cleanup Liens	• No requirement as to who is responsible for the search • Scope of environmental cleanup lien search includes those liens filed or recorded under federal, state, tribal or local law	• User's responsibility • The search results must be reported to the environmental professional • Scope of environmental cleanup lien search is limited to reasonably ascertainable land title records
Government Records Review	• Federal, state, tribal, and local • Records	• Federal and state records • Local records/sources at the discretion of the environmental professional
Site Inspection	• Visual inspection of subject property and adjoining properties required • Limited exemption with specific requirements if the subject • property cannot be visually inspected	• Visual inspection of subject property required. No exemption. • No specific requirement to inspect adjoining properties; only to report anything actually observed
Contaminants of Concern	<u>Parties seeking CERCLA defense</u>: • CERCLA hazardous substances <u>EPA Brownfields Grant recipients</u>: • CERCLA hazardous substances, pollutants or contaminants • petroleum/petroleum products • controlled substances	CERCLA hazardous substances and petroleum products
Data Gaps	• Requires identification of sources consulted to address data gaps and comments on significance of data gap with regard to the ability of the environmental professional to identify conditions indicative of releases and threatened releases	• Generally discretionary; • Sources that revealed no findings must be documented.
Shelf Life of the Written Report	• One year, with some updates required after 180 days	• Updates of specific activities recommended after 180 days

RESULTS OF INQUIRIES BY AN ENVIRONMENTAL PROFESSIONAL (§ 312.21)

Definition of Environmental Professional

To ensure the quality of all appropriate inquiries investigations, the final rule defines specific qualifications for environmental professionals. The rule requires that the person who supervises or oversees the conduct of the all appropriate inquiries, or the Phase I environmental site assessment, meet the final rule's qualifications for an environmental professional. The rule does not require that all individuals involved in conducting the all appropriate inquiries investigations qualify as an environmental professional

The definition of an environmental professional provided in the final rule differs from the qualifications included in the ASTM E1527-00 standard. Unlike the ASTM E1527-00 standard, the final rule on all appropriate inquiries imposes specific educational, certification or licensing, and relevant experience requirements for the environmental professional tasked with overseeing the assessment. The final rule requires that the environmental professional qualifications be met by the person supervising the conduct of all appropriate inquiries investigation. The environmental professional qualifications under the two standards are summarized in Exhibit 3.

The all appropriate inquiries final rule does not preclude a person lacking the proper certification or license or sufficient education and relevant experience from participating in the conduct of all appropriate inquiries investigations. A person who does not qualify as an environmental professional under the regulatory definition may assist in the conduct of all appropriate inquiries if he or she is under the supervision or responsible charge of a person who meets the qualifications of an environmental professional. For example, a person lacking the required certification or license or education and relevant experience may perform the individual activities required by the final rule, provided that a qualified environmental professional oversees his or her work.

Exhibit 3: Required Qualifications for an Environmental Professional

	All APPRORIATE INQUIRIES FINAL RULE	ASTM E1527-00
Definition	A person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of releases or threatened releases (per Section 312.1(c)) on, at, in or to a property, sufficient to meet the objectives and performance factors in Section 312.20(e) and (f) (Section 3.10).	A person possessing sufficient training and experience necessary to conduct a site reconnaissance, interviews, and other activities in accordance with [the ASTM standard], and from the information generated by such activities, having the ability to develop opinions and conclusions regarding recognized environmental conditions in connection with the property in question. An individual's status as an environmental professional may be limited to the type of assessment to be performed or to specific segments of the assessment for which the professional is responsible. (Section 3.3.12).
Certification/License, Education and Relevant Experience Requirements	Hold a current Professional Engineer's or Professional Geologist's license and have the equivalent of *three* years of full-time relevant experience *OR* Hold a current registration from a state, tribe, U.S. territory, or the Commonwealth of Puerto Rico and have the equivalent of *three* years of full-time relevant experience *OR* Be licensed or certified by the federal government, a state, tribe, U.S. territory, or the Commonwealth of Puerto Rico to perform environmental inquiries as defined by the AAI rule (Section 312.21) and have the equivalent of *three* years of full-time relevant experience *A person who does not hold a relevant license or certificate may still qualify as an environmental professional if he/she* Have a Baccalaureate or higher degree from an accredited institution of higher education in a discipline of engineering or science and have the equivalent of *five* years of full-time relevant experience *A person who does not have a relevant license or certificate and does not hold a university degree in a discipline of engineering or science can qualify as an environmental professional if he/she* Has the equivalent of *ten* years of full-time relevant experience	No requirements
Additional Requirements	Remain current in his/her field through participation in continuing education or other relevant activities	None

Documentation of the Results of the All Appropriate Inquiries

Under both the all appropriate inquiries final rule and the ASTM E1527-00 standard, the results of the Phase I investigation must be documented in a written report. Like the ASTM E1527-00, the all appropriate inquiries final rule does not specify the structure, format, or length of the final report documenting the results of the inquiries. The ASTM E1527-00 standard provides a recommended report format; the all appropriate inquiries final rule does not include any requirements for the report format.

The all appropriate inquiries rule requires that the written report include two signed declarations by the environmental professional. One declaration must state that the environmental professional meets the qualifications for environmental professionals included in the final rule (see 40 CFR 312.10). The environmental professional is not required to include in the written report any documentation corroborating the qualifications statement (*e.g.,* a copy of a current Professional Geologist's license). The second declaration required to be included in the final report must state that the all appropriate inquiries were carried out in accordance with the requirements of the final rule.

INTERVIEWS WITH PAST AND PRESENT OWNERS, OPERATORS, AND OCCUPANTS (§ 312.23)

The final rule includes requirements to conduct interviews with the current owner(s) and occupant(s) of the subject property, as necessary to meet the objectives and performance factors of the rule, to collect information on past uses and ownerships of the property, and to identify potential conditions that may indicate the presence of releases or threatened releases of hazardous substances[2] at the subject property. The ASTM E1527-00 standard does not require that interviews be conducted with past owners or occupants of a property; the standard only suggests that current owners be questioned about past uses and ownership.

The all appropriate inquiries final rule requires that additional interviews be conducted with parties such as current and past facility managers, past owners, operators or occupants of the property, and employees of past and current occupants of the subject property, as necessary to meet the objectives and performance factors of the final rule (*see* 40 CFR 312.20(e) - (f)). The final rule allows the environmental professional to use his or her discretion to determine whether such interviews are necessary. Under the ASTM E1527-00 standard, the environmental professional must inquire about the past uses of the subject property when interviewing the current property owner and key site manager.

The all appropriate inquiries final rule goes beyond the ASTM E1527-00 by requiring interviews with owners and occupants of neighboring and nearby properties in cases where the subject property is abandoned and there is evidence of potential unauthorized uses or uncontrolled access. Such interviews could help gather information that may not be available from any other source, given that no owner or occupant of the subject property can be identified to provide information on the uses and ownerships of the property.

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[2] Individuals conducting all appropriate inquiries as part of an EPA Brownfields Assessment grant must also include pollutants, contaminants, petroleum and petroleum products, and controlled substances in the scope of the inquiry as required by their cooperative agreement with EPA.

REVIEWS OF HISTORICAL SOURCES OF INFORMATION (§ 312.24)

Historical Sources

The all appropriate inquiries final rule requires that environmental site assessments include reviews of historical sources of information about the property. The purpose is to ensure that a continuous record of land uses is assembled to create a comprehensive review of the potential for releases of hazardous substances at the property. The all appropriate inquiries rule, as well as ASTM E1527-00 standard, does not require that any specific historic document be reviewed nor does it specify the minimum number of records to be reviewed. The records that may be reviewed include, but are not limited to, aerial photographs, fire insurance maps, building department records, chain of title documents, and land use records. Historical sources of information should be reviewed as necessary to meet the objectives and performance factors of the final rule.

Research Timeframe

The all appropriate inquiries rule requires that historical documents be reviewed as far back in time as the property contained structures or the property was used for agricultural, residential, commercial, industrial, or governmental purposes. The final rule allows for the environmental professional to apply professional judgment to determining how far back in time it is necessary to review historical records, subject to the objectives and performance factors of the rule. In comparison, ASTM E1527-00 requires that all obvious uses of the property be identified from the present back to the property's obvious first developed use, or back to 1940, whichever is earlier. For example, if a property was first used in 1960, under the ASTM E1527-00 standard, the environmental professional must review historical sources of information going back to 1940. Under the all appropriate inquiries final rule, historical sources of information must be reviewed only as far back as 1960.

Research Interval

Under the ASTM E1527-00 standard, the research interval is specified as a function of the property use. Intervals of less than five years or more than five years are not required if the property use remains unchanged. For example, if historical records show the same property use in 1940 and 1960, it is not necessary to obtain and review additional historical records to ascertain the property use in the interim period. The all appropriate inquiries rule does not specify or give guidance on the research interval for reviewing historical records. Accordingly, the environmental professional must exercise professional judgment to determine the most appropriate research interval.

Review of Historical Information Pertinent to Surrounding Area

The ASTM E1527-00 standard requires that the uses of properties surrounding the subject property should be identified in the report if the information is revealed in the course of researching the subject property (*e.g.*, if the aerial photographs show the area beyond the subject property boundaries). Although the all appropriate inquiries rule does not contain the same requirement, the objectives and performance factors of the rule do include within the scope of the types of information that should be collected the environmental conditions of adjoining or nearby properties.

SEARCHES FOR RECORDED ENVIRONMENTAL CLEANUP LIENS (§ 312.25)

The all appropriate inquiries rule requires that environmental site assessments include searches for environmental cleanup liens against the subject property that are filed or recorded under federal, state, tribal, or local laws. The objective of this requirement is to identify liens placed upon the property that indicate that environmental response actions were taken to address past releases at, on, or to the subject property. The ASTM E1527-00 standard also requires a search for environmental cleanup liens, although the scope of the search is limited to reasonably ascertainable recorded land title records.

The all appropriate inquiries rule differs from the ASTM E1527-00 standard with respect to the party responsible for conducting the search for environmental cleanup liens. Under the ASTM E1527-00 standard, the user, or prospective property owner, is responsible for the environmental cleanup lien search and is required to provide the results of the search to the environmental professional. The all appropriate inquiries rule allows that either the prospective property owner or the environmental professional may conduct the search. If the search is performed by the prospective property owner and the property owner does not provide the search results to the environmental professional, the environmental professional should treat the lack of information as a data gap and should comment on the significance of the data gap on his or her ability to identify conditions indicative of releases or threatened releases.

REVIEWS OF FEDERAL, STATE, TRIBAL AND LOCAL GOVERNMENT RECORDS (§ 312.26)

The all appropriate inquiries final rule requires that environmental site assessments include a review of federal, state, tribal, and local government records and specifies the minimum search distance for each record. The type of records and the minimum search distances do not differ significantly from the requirements included in the ASTM E1527-00 standard, in the case of federal and state government records. Both the ASTM E1527-00 standard and the all appropriate inquiries final rule allow the environmental professional to exercise discretion to modify the minimum search distance for a particular record type, based upon enumerated factors. The ASTM E1527-00 standard does not allow for the reduction of search distance for the federal NPL site list and the federal RCRA TSD list. In the case of both standards, the reason(s) for any such modification must be documented in the written report.

The all appropriate inquiries final rule goes beyond the requirements of the ASTM E1527-00 standard by requiring that records maintained by tribal and local governmental agencies be

reviewed. The ASTM E1527-00 standard lists local governmental records as supplemental sources to be consulted at the discretion of the environmental professional.

The all appropriate inquiries regulation also places more emphasis on institutional and engineering controls than the ASTM E1527-00 standard. Under the ASTM E1527-00 standard, the user is responsible for identifying institutional and engineering controls found in reasonably ascertainable recorded land title records and is required to provide the results of such searches to the environmental professional. The ASTM E1527-00 standard does not explicitly require that the search results be documented in the written report. The all appropriate inquiries regulation allows for the search for institutional and engineering controls to be performed by either the prospective property owner or the environmental professional. If the search is performed by the prospective property owner and the results of the search are not provided to the environmental professional, the environmental professional should treat the lack of information as a data gap and should comment on the significance of the data gap on his or her ability to identify conditions indicative of releases or threatened releases.

VISUAL INSPECTIONS OF THE FACILITY AND OF ADJOINING PROPERTIES (§312.27)

The all appropriate inquiries final rule requires that environmental site assessments include an on-site visual inspection of the subject property and facilities and improvements on the subject property. The all appropriate inquiries rule does not extend the scope of the subject property visual inspection beyond the current ASTM E1527-00 requirements.

With respect to adjoining properties, the requirements of the ASTM E1527-00 standard and the all appropriate inquiries rule differ. The all appropriate inquiries rule requires that the environmental professional perform a visual inspection of such properties from the subject property line, public rights-of-way, or another vantage point. The ASTM E1527-00 standard does not explicitly require a visual inspection of adjoining properties. However, the ASTM E1527-00 standard states that current and past uses of adjoining properties should be identified in the Phase I ESA report if such uses are visually or physically observed during the subject property visit, or are identified in the interviews or record reviews, if they are likely to indicate recognized environmental conditions.

In the cases where on-site access to the subject property cannot be obtained to conduct the visual inspection of the subject property, the ASTM E1527-00 standard does not provide for an alternative course of action. The failure to conduct the on-site visual inspection must be documented in the Phase I report as a limitation. In contrast, the all appropriate inquiries rule provides for a limited exemption to the on-site visual inspection requirement and imposes specific documentation and inspection requirements in that situation. The all appropriate inquiries regulation requires that the environmental professional do the following:

- Visually inspect the subject property via another method (*e.g.*, aerial imagery) or from an alternate vantage point (*e.g.*, walk the property line);

- Document efforts taken to gain access to the subject property;

- Document the use of other sources of information to determine the existence of potential environmental contamination; and

- Express an opinion about the significance of the failure to conduct an on-site visual inspection on the ability of the environmental professional to identify conditions indicative of releases or threatened releases.

SPECIALIZED KNOWLEDGE OR EXPERIENCE ON THE PART OF THE DEFENDANT (§ 312.28)

Under the ASTM E1527-00 standard, the user, or prospective property owner, is required to disclose to the environmental professional any specialized knowledge of the subject property and surrounding areas that is material to recognized environmental conditions in connection with the subject property. The all appropriate inquiries final rule requires that any specialized knowledge held by the prospective property owner be documented or taken into account during the inquiries. However, the prospective property owner is not required to provide this information to the environmental professional. If the information is not provided to the environmental professional, the environmental professional should treat the lack of information as a data gap and should comment on the significance of the data gap on his or her ability to identify conditions indicative of releases or threatened releases.

THE RELATIONSHIP OF THE PURCHASE PRICE TO THE VALUE OF THE PROPERTY, IF THE PROPERTY WERE NOT CONTAMINATED (§ 312.29)

Both the all appropriate inquiries final rule and the ASTM E1527-00 standard require that the user, or prospective property owner, consider the relationship of the purchase price and the fair market value of the property, if the property were not contaminated. The ASTM E1527-00 standard, however, only requires this comparison if the user has actual knowledge that the purchase price is significantly less than that of comparable properties. In cases where the purchase price paid for the subject property does not reflect the fair market value of the subject property if it were not contaminated, the ASTM E1527-00 standard and the all appropriate inquiries final rule impose slightly different requirements. The ASTM E1527-00 standard requires that the user identify an explanation for the difference between price and value and make a written record of such explanation. The all appropriate inquiries final rule requires that the prospective property owner consider whether or not the difference in purchase price and fair market value is due to the presence of releases or threatened releases of hazardous substances. Neither standard explicitly states that documentation of a discrepancy or difference between the price and value of the property must be included in the final report. Under the all appropriate inquiries final rule, if the prospective property owner does not provide information regarding the relationship of the purchase price of the subject property to its fair market value to the environmental professional, the environmental professional should treat the lack of such information as a data gap gap and should comment on the significance that the data gap may have on his or her ability to identify conditions indicative of releases or threatened releases.

COMMONLY KNOWN OR REASONABLY ASCERTAINABLE INFORMATION ABOUT THE PROPERTY (§ 312.30)

Under the all appropriate inquiries final rule, the prospective property owner and environmental professional are required to take into account, during the conduct of all the required inquiries or activities, commonly known or reasonably ascertainable information about the subject property. In addition to the information sources consulted during the conduct of the historical records searches, the review of government records, and the required interviews, such information may be obtained from a variety of sources, including newspapers, local government officials, community organizations, and websites, among others. Commonly known and reasonably ascertainable information must be pursued to the extent necessary to achieve the objectives and performance factors of the final rule. Although the ASTM E1527-00 standard does not explicitly include such a requirement, it is up to the environmental professional to determine if any source, other than those identified as "standard sources" should be reviewed to obtain necessary information about the environmental conditions of the subject property.

THE DEGREE OF OBVIOUSNESS OF THE PRESENCE OR LIKELY PRESENCE OF CONTAMINATION AT THE PROPERTY, AND THE ABILITY TO DETECT THE CONTAMINATION BY APPROPRIATE INVESTIGATION (§ 312.31)

The all appropriate inquiries regulation requires that the prospective property owner and environmental professional take into account information collected during the inquiries in considering the degree of obviousness of the presence or likely presence of hazardous substances on, at, in, or to the subject property. They should also take into account the information collected during the inquiries in considering the ability to detect contamination by appropriate investigation. These requirements are consistent with the ASTM E1527-00 requirements. The all appropriate inquiries rule, however, requires that the environmental professional also provide in the written report an opinion regarding additional appropriate investigation that may be necessary, if any. The opinion could include activities or considerations outside the scope of the all appropriate inquiries investigation that might help the prospective property owner to more fully characterize environmental conditions on the property. The ASTM E1527-00 standard does not explicitly require that such an opinion be included in the final report.

ADDITIONAL REQUIREMENTS (§ 312.20)

Recognized Environmental Conditions – Inclusion of Petroleum Releases

Unlike the ASTM E1527-00 standard, the all appropriate inquiries final rule does not require that the environmental professional consider releases and threatened releases of petroleum and petroleum products in the scope of all environmental site assessments.

Under the all appropriate inquiries final rule, if the environmental site assessments are being conducted for the purpose of qualifying for one of the three CERCLA liability protections, the environmental professional must seek to identify conditions indicative of releases and threatened releases of hazardous substances, if any. The scope of the investigation may include the identification of potential petroleum releases that do not include hazardous substances at the discretion of the prospective property owner and environmental professional.

In cases where the all appropriate inquiries investigation is being funded by a federal brownfields assessment grant, where the scope of the grant or cooperative agreement includes the assessment of releases or threatened releases of petroleum and petroleum products, the environmental professional must include petroleum and petroleum products within the scope of the all appropriate inquiries investigation. Certain federal brownfields grants may also include requirements to assess a property for the presence or potential presence of controlled substances.

Data Gaps

The all appropriate inquiries rule requires a more extensive documentation of data gaps than was required under the ASTM E1527-00 standard. The all appropriate inquiries rule requires that the environmental professional: (1) identify data gaps that remain after the conduct of all required activities; (2) identify the sources of information consulted to address such data gaps; and (3) comment upon the significance of such data gaps with regard to his or her ability to identify conditions indicative of releases or threatened releases of hazardous substances on, at, in, or to the property. The ASTM E1527-00 standard requires that the environmental professional document sources that revealed no findings. Additional data gaps or limitations were not required to be identified and documented.

Shelf Life

Under the all appropriate inquiries final rule, a prospective property owner may use a Phase I ESA report without having to update any information collected as part of the inquiry:

- If the all appropriate inquiries investigation was completed less than 180 days prior to the date of acquisition of the property; or

- If the Phase I ESA report was prepared as part of a previous all appropriate inquiries investigation and was completed less than 180 days prior to the date of acquisition of the property.

This provision is consistent with the ASTM E1527-00 standard.

Under the all appropriate inquiries final rule, a prospective property owner may use a previously conducted Phase I ESA report:

- If the Phase I ESA report was prepared as part of a previous all appropriate inquiries investigation for the same property; and

- If the information was collected or updated within one year prior to the date of acquisition of the property; and

- Certain aspects of the previously conducted report are conducted or updated within 180 days prior to the date of acquisition of the property. These aspects include the interviews, on-site visual inspection, the historical records review, and the search for environmental liens.

Under the all appropriate inquiries final rule, information collected from previously completed all appropriate inquiries investigations of the subject property can be used as sources of

information even when they are more than a year old as long as all information is reviewed for accuracy and is updated to reflect current conditions and current property-specific information.

In all cases, the analysis of the relationship of the purchase price of the subject property to the fair market value of the property, if it were not contaminated, must reflect the current property transaction. In addition, the assessment of specialized knowledge must be reflective of the prospective property owner seeking the liability protection or the brownfields grantee.

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