

Appraisal Standards and Contaminated Property Valuation

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A wide variety of opinion exists concerning the applicability of appraisal standards to the valuation of contaminated properties. Opinions range from assertions that such properties are so unique or different from uncontaminated properties that appraisal standards do not apply at all, to assertions that contaminated properties are no different from any other property, and therefore nothing special or different should be done to value them. To the contrary, the unique sets of risks and costs associated with contaminated properties make them different from otherwise similar but uncontaminated properties. This uniqueness does not preclude the applicability of existing appraisal standards to the valuation of these properties; it merely results in a more complex assignment.

The complexity of valuing contaminated properties is addressed in Advisory Standards Board (ASB) Advisory Opinion 9 (AO-9), "The Appraisal of Real Property That May Be Impacted by Environmental Contamination." In the 2003 version of AO-9, published with the *Uniform Standards of Professional Appraisal Practice* (USPAP), the Appraisal Standards Board provides specific guidance regarding the application of USPAP to assignments involving contaminated properties. The current version of AO-9 represents a significant change from the previous version in that it directly addresses assignments in which the appraiser's primary responsibility is to value real property that is known to be, or is suspected of being, contaminated. Moreover it advises that the appraiser specifically consider the effects of contamination in the valuation.

Previous guidance in AO-9 and elsewhere has been directed toward limiting the appraiser's liabilities in assignments where the valuation of the "as is" or "impaired" condition of the property was not the focus of the assignment. (Indeed, the title of the pre-

vious AO-9 was "The Responsibility of Appraisers Concerning Toxic or Hazardous Substances.") Many such appraisal assignments were conducted under a hypothetical condition that a site known to be contaminated was thought to be, or actually was, uncontaminated. While this type of assignment and assignment conditions serve a valid and useful purpose, an increasing number of assignments require the quantification of the impacts of environmental contamination on the value of real property. This column addresses the provisions of the revised AO-9 in the context of assignments in which the primary purpose is to quantify the effects of environmental contamination.

Applicable USPAP Definitions, Rules, and Standards

Advisory Opinion 9 like all advisory opinions accompanying USPAP provides guidance as to how USPAP standards are to be applied in specific types of appraisal assignments. For assignments involving contaminated property valuation, a number of definitions, rules, and standards from USPAP must be considered and complied with to produce a credible and reliable estimate of market value as well as an estimate of the effects of environmental contamination on value. As noted in AO-9, particularly relevant USPAP provisions include the definitions of *extraordinary assumption* and *hypothetical condition*; the Ethics Rule; the Competency Rule; and Standard 1, particularly S.R. 1-1(a), 1-2(e), 1-2(g) and (h), 1-3(b), and 1-4. These provisions are shown in Table 1.

Extraordinary Assumptions

The definition of *extraordinary assumption* becomes important in an assignment to value contaminated property when the appraiser relies on the work of

Table 1 Contaminated Property Valuation—Relevant USPAP References

DEFINITIONS

EXTRAORDINARY ASSUMPTION: an assumption, directly related to a specific assignment, which, if found to be false could alter the appraiser's opinions or conclusions (USPAP, Lines 85-86).

HYPOTHETICAL CONDITION: that which is contrary to what exists but is supposed for the purpose of analysis (USPAP, Lines 92-93).

ETHICS RULE

Conduct: An appraiser must perform assignments ethically and competently, in accordance with USPAP and any supplemental standards agreed to by the appraiser in accepting the assignment.... An appraiser must perform assignments with impartiality, objectivity, and independence, and without accommodation of personal interests.... An appraiser must not communicate assignment results in a misleading or fraudulent manner (USPAP, Lines 258-261, 268).

COMPETENCY RULE. Prior to accepting an assignment or entering into an agreement to perform any assignment, an appraiser must properly identify the problem to be addressed and have the knowledge and experience to complete the assignment competently; or alternatively, must: (1) disclose the lack of knowledge and/or experience to the client before accepting the assignment; (2) take all steps necessary or appropriate to complete the assignment competently; and (3) describe the lack of knowledge and/or experience and the steps taken to complete the assignment competently in the report (USPAP, Lines 361-368).

STANDARD 1

Standards Rule 1-1(a). In developing a real property appraisal, an appraiser must: (a) be aware of, understand, and correctly employ those recognized methods and techniques that are necessary to produce a credible appraisal (USPAP, Lines 510-512).

Standards Rule 1-2(e). In developing a real property appraisal, an appraiser must: (e) identify the characteristics of the property that are relevant to the purpose and intended use of the appraisal (USPAP, Lines 543, 566-567).

Standards Rule 1-2(g) and (h). In developing a real property appraisal, an appraiser must: (g) identify *any* extraordinary assumptions necessary in the assignment; and (h) identify *any* hypothetical conditions necessary in the assignment (USPAP, Lines 543, 607, and 614. Emphasis added).

Standards Rule 1-3(b). When the value opinion to be developed is a market value, and given the scope of work identified in accordance with Standard Rule 1-2(f), an appraiser must: (b) develop an opinion of the highest and best use of the real estate (USPAP, Lines 623 and 630).

Standards Rule 1-4. In developing a real property appraisal, an appraiser must collect, verify, and analyze all information applicable to the appraisal problem, given the scope of work identified in accordance with Standards Rule 1-2(f) (USPAP, Lines 638-640).

Source: The Appraisal Foundation, *Uniform Standards of Professional Appraisal Practice*, 2003 ed. (Washington, DC: The Appraisal Foundation, 2003).

another in developing assumptions about the contamination. This is nearly always the case when the work of qualified environmental engineers and others is used to describe the nature and extent of the contamination. The appraiser generally would not be in a position to evaluate this information independently and would rely on the opinions of those with appropriate qualifications. The appraiser should believe, however, that the information provided by such experts is reasonable in light of what he or she knows about the property. In these situations USPAP requires the appraiser to qualify his or her use of such information with an appropriate extraordinary assumption, noting that if such information is *found to be false, it could alter the appraiser's opinions or con-*

clusions (USPAP, Line 86). This qualification alerts the users of the report to the importance of such information and to the fact that the appraiser relied on it in completing the appraisal assignment.

Hypothetical Conditions

The use of hypothetical conditions typically occurs when a contaminated property, or a property suspected of being contaminated, is appraised as if it were uncontaminated. The value opinion resulting from an appraisal that uses this type of hypothetical condition could be considered the unimpaired value of a contaminated property. In such an appraisal the hypothetical condition that the property is not affected by the adverse environmental influence would

be *contrary to what exists but is supposed for the purpose of analysis* (USPAP, Lines 92–93). In an assignment to appraise a contaminated property, the hypothetical unimpaired value provides a baseline for estimating the impact of the environmental contamination on value. Deducting the estimated impact of the contamination from the hypothetical unimpaired value provides an estimate of the impaired value of the property. When there is no impact, or the estimated impact is zero, the estimates of unimpaired and impaired values would be the same.

Competency Rule

The Competency Rule of USPAP is particularly critical to any assignment involving contaminated property because these properties have unique risks and costs, and because the methods and techniques used to analyze the impacts of these risks and costs are usually quite specialized. The Competency Rule does not preclude appraisers with limited training and experience in contaminated property valuation from undertaking such assignments, but it does require that the appraiser take the following steps: (1) *disclose the lack of knowledge and/or experience to the client before accepting the assignment*; (2) *take all steps necessary or appropriate to complete the assignment competently* (e.g., additional training and/or association with others competent to perform such assignments); and (3) *describe the lack of knowledge and/or experience and the steps taken to complete the assignment competently in the report* (USPAP, Lines 364–368. Emphasis added).

The Competency Rule applies to valuing contaminated property and to the specific methods and techniques used to estimate the effects of contamination on value, such as case studies analysis and regression analysis. (For example the use of case study analysis to value contaminated property is discussed in T. Jackson and R. Bell, “The Analysis of Environmental Case Studies,” *The Appraisal Journal* (January 2002).) An appraiser who lacks qualifications and experience in the techniques applicable to contaminated property must comply with the provisions of the Competency Rule.

USPAP Compliance

In some states USPAP is enforced by state regulatory agencies only for appraisals performed by licensed and certified appraisers for federally related transactions. In other states the regulatory agencies

enforce USPAP for all appraisals. Moreover organizations such as the Appraisal Institute and the International Association of Assessing Officers mandate compliance with USPAP for their members. The provisions of USPAP are usually not enforced against individuals in other professions, such as accounting, engineering, or economics, who might occasionally deal with real property environmental issues. In the United States, however, USPAP is the broadest and most far-reaching statement of standards, rules, and guidance for the valuation of real property. As such the courts and others ought to grant it considerable weight in determining professionally acceptable practice in the valuation of contaminated property. Estimating the impact of contamination on the value of real property is well within the purview of the appraisal profession. The question of the value of impacted properties is a question of market value, and the professionals specifically qualified to analyze the market value of real property have been, and should continue to be, appraisers.

Standard 1

Standard 1 of USPAP governs the development of real property appraisals, and a number of its provisions have added meaning and applicability in assignments involving the appraisal of contaminated properties. As noted in AO-9, these include:

- S.R. 1-1(a) requiring appraisers to *be aware of, understand, and correctly employ those recognized methods and techniques that are necessary to produce a credible appraisal* (USPAP, Lines 511–512).
- S.R. 1-2(e) requiring appraisers to *identify the characteristics of the property that are relevant to the purpose and intended use of the appraisal* (USPAP, Lines 566–567).
- S.R. 1-2(g) and (h) on *extraordinary assumptions and hypothetical conditions* (USPAP, Lines 607, 614).
- S.R. 1-3(b) involving opinions of the *highest and best use* of the property (USPAP, Line 630).
- S.R. 1-4 involving the collection, verification, and analysis of *all information applicable to the appraisal problem*. (USPAP, Lines 638–639. Emphasis added), as opposed to information that supports only one of two or more conflicting positions.

While the provisions of USPAP must be followed to produce any credible appraisal, they have

special importance in the context of assignments to value contaminated property.

Although not specifically mentioned in AO-9, Standards Rule 1-2(f), which requires the appraiser to identify his or her scope of work, also has applicability in this type of appraisal assignment. Importantly the appraiser's scope of work should be consistent with accepted practice for appraisals of contaminated property in light of market expectations and what the appraiser's peers would do in a similar assignment to be in conformance with USPAP. In this usage, *peers* are those appraisers who are competent to perform such assignments according to the requirements of the Competency Rule.

Appraisal Consulting Assignments

Advisory Opinion 9 deals specifically with assignments involving appraisals of individual properties that may be contaminated, as developed according to Standard 1. At times however appraisers may be asked to evaluate the impacts of environmental contamination in a broader context, such as its impacts on neighborhoods or large groups of properties surrounding a contamination source. Such an assignment would be more akin to a market study than to an appraisal of an individual property. In such cases, the analysis might be developed as an *appraisal consulting* assignment in accordance with Standard 4 and reported in accordance with Standard 5. As explained however in the comments to Standard 4, appraisal consulting assignments involve the development of *an analysis, recommendation, or opinion where at least one opinion of value is a component of the analysis leading to the assignment results* (USPAP, Lines 1324–1326). In an analysis of environmental impacts, typically two values are estimated: impaired value and unimpaired value. An assignment to evaluate the impacts of contamination on more than a single property might be an appraisal consulting assignment when it uses the unimpaired value estimated by the consulting appraiser or another appraiser as a base from which to estimate the impaired value of the impacted property or properties. The analysis of the impacts of contamination in the broader context still involves estimating the difference between these values. Appraisal consulting assignments should be developed in a manner consistent with the concepts, definitions, and valuation framework set forth in AO-9. Moreover a scope of work as described in S.R. 4-2(f) should be supplied in the appraisal report.

Definitions and Concepts

Advisory Opinion 9 presents a number of terms and definitions relevant to the valuation of contaminated properties: *diminution in value, environmental contamination, environmental risk, environmental stigma, impaired value, unimpaired value, remediation cost, remediation lifecycle*, and the categorization of potentially impacted properties as *source, non-source, adjacent, and proximate sites*. The definitions of these terms are shown in Table 2. Appraisers must consider the specialized meanings of these terms in the context of contaminated property valuation.

Environmental Risk and Stigma

The concept of environmental stigma is often misunderstood and misused. Many posit that it is solely a residual effect (or taint) that continues to affect a site's value even following the cleanup of contamination on the site. Others view it as an unmeasurable effect on property value due to perceptions and fears of contamination. Advisory Opinion 9 links the concepts of environmental risk and environmental stigma by defining *stigma as an adverse effect on property value produced by the market's perception of increased environmental risk due to contamination* (AO-9, Lines 90–91). *Environmental risk* in turn is simply *the additional or incremental risk of investing in, financing, buying and/or owning property attributable to its environmental condition* (AO-9, Lines 81–82). Risk varies inversely with the knowledge of and uncertainty concerning remediation costs, liabilities for cleanup, potential off-site impacts, and other factors. If there were no uncertainty with respect to these factors, environmental risk would be zero, and property value diminution attributable to stigma would also be zero.

Remediation Cost and Lifecycle

Environmental risk and potential stigma impacts would be greatest before cleanup, when less is known about the contamination and its costs. It would be least after cleanup, when there has been extensive testing, and regulatory requirements are known and have been addressed during the remediation. Studies showing the rebound in prices following the cleanup of contaminated sites are abundant in professional and academic literature. This sequence of property condition is known as the *remediation lifecycle* and is defined in AO-9 as *a cycle consisting of three stages: before remediation or cleanup; during*

remediation; and after remediation (AO-9, Lines 98–99. Emphasis added). The advisory opinion goes on to note that *environmental risk can be expected to vary with the remediation lifecycle stage of the property* (AO-9, Line 101), in recognition of the variance in environmental risk and stigma that this cycle produces.

Impaired Value, Unimpaired Value, and Property Value Diminution

Advisory Opinion 9 defines *impaired value* as market value *with full consideration of the effects of its environmental condition* (AO-9, Lines 92–93), or the as-is value of a contaminated property. *Unimpaired value* is the value *of a contaminated property developed under the hypothetical condition that the property is not contaminated* (AO-9, Lines 107–108). *Property value diminution* is the difference between the unimpaired and impaired values. It is the diminished property value *due to the increased risks and/or costs attributable to the property's environmental condition* (AO-9, Lines 74–76). In the valuation framework for appraising contaminated properties, discussed later in this column, adverse effects on property value are categorized as being due to increased risk and costs and/or reduced site usability attributable to contamination. Costs include capital and operating costs resulting from the contamination and its cleanup that affect property cash flows.

Relevant Property Characteristics

Consistent with S.R. 1-2(e), AO-9 lists a number of specific characteristics of contaminated properties that the appraiser should consider. Knowing whether or not the contamination is the result of a permitted or accidental release is necessary because there are many permitted industrial releases of contaminants for which there is no required cleanup, there is ample testing and monitoring, and there is no impact on the cost and risk of investing in or owning the property. It is necessary to know the regulatory compliance status because properties with contamination and not in compliance could have greater risk and higher costs necessary to achieve compliance. Appraisers must be familiar with the remediation lifecycle since risk and cost can vary before, during, and after cleanup. Liabilities for cleanup or who is responsible for site cleanup and its costs, and whether these liabilities and the responsible parties were known as of the date of value also constitute significant information. Other rel-

evant property characteristics are limitations on the use of the property; whether the property is a source site, non-source site, adjacent, or proximate to the source site because different types of sites have significantly different risks and costs due to contamination; type of contamination (petroleum, chlorinated solvents, etc.); conveyance of the contamination or impacted media (groundwater, soils, etc.); and potential for off-site migration of the contamination (for source sites).

Highest and Best Use Considerations

Many of the relevant property characteristics can be analyzed in the context of the highest and best use of the contaminated property. The use of a property may be limited by the contamination and its cleanup, and these potential limitations should be analyzed. The analysis can begin with the highest and best use of the property in an unimpaired condition and then address any effects on that use due to the contamination. Contamination may have potential impacts on other uses of a site that would not be highest and best uses, but these impacts are not relevant limitations for purposes of estimating the impacts of contamination. An example is an industrial use in an industrial district that has a highest and best use as industrial for both the land as though vacant and the property as improved. Deed restrictions and limitations on other uses, such as day care centers or residential uses that are not feasible regardless of the contamination, would have no impact on the highest and best use of the site and no effect on site usability. This point is important with respect to risk-based cleanup programs now in effect in many states. In these programs cleanup is tailored to specific and realistic exposure potentials of existing and surrounding land uses, not to all uses and exposures regardless of their practicality or market feasibility. A use that is not feasible from a market and financial standpoint cannot be the highest and best use.

Valuation Framework

The valuation of contaminated property is addressed in the current version of AO-9 by the addition of the following statement from the previous version of the advisory opinion: [*T*he value of an interest in impacted or contaminated real estate may not be measurable simply by deducting the remediation or compliance cost estimate from the opinion of the value as if unaffected (AO-9, Lines 167–169)]. The 2003 ver-

Table 2 Contaminated Property Valuation—Specialized Terms and Definitions

Diminution in Value (Property Value Diminution): The difference between the unimpaired and impaired values of the property being appraised. This difference can be due to the increased risk and/or costs attributable to the property's environmental condition.

Environmental Contamination: Adverse environmental conditions resulting from the release of hazardous substances into the air, surface water, groundwater or soil. Generally, the concentrations of these substances would exceed regulatory limits established by the appropriate federal, state, and/or local agencies.

Environmental Risk: The additional or incremental risk of investing in, financing, buying and/or owning property attributable to its environmental condition. This risk is derived from perceived uncertainties concerning: (1) the nature and extent of the contamination; (2) estimates of future remediation costs and their timing; (3) potential for changes in regulatory requirements; (4) liabilities for cleanup (buyer, seller, third party); (5) potential for off-site impacts; and (6) other environmental risk factors, as may be relevant.

Environmental Stigma: An adverse effect on property value produced by the market's perception of increased environmental risk due to contamination. (see Environmental Risk, above).

Impaired Value: The market value of the property being appraised with full consideration of the effects of its environmental condition and the presence of environmental contamination on, adjacent to, or proximate to the property. Conceptually, this could be considered the "as-is" value of a contaminated property.

Remediation Cost: The cost to cleanup (or remediate) a contaminated property to the appropriate regulatory standards. These costs can be for the cleanup of on-site contamination as well as mitigation of off-site impacts due to migrating contamination.

Remediation Lifecycle: A cycle consisting of three stages of cleanup of a contaminated site: before remediation or cleanup; during remediation; and after remediation. A contaminated property's remediation lifecycle stage is an important determinant of the risk associated with environmental contamination. Environmental risk can be expected to vary with the remediation lifecycle stage of the property.

Source, Non-source, Adjacent and Proximate Sites: Source sites are the sites on which contamination is, or has been, generated. Non-source sites are sites onto which contamination, generated from a source site, has migrated. An adjacent site is not contaminated, but shares a common property line with a source site. Proximate sites are not contaminated and not adjacent to a source site, but are in close proximity to the source site.

Unimpaired Value: The market value of a contaminated property developed under the hypothetical condition that the property is not contaminated.

Source: Appraisal Standards Board, Advisory Opinion 9, "The Appraisal of Real Property That May Be Impacted by Environmental Contamination," 2003, Lines 74–108.

sion of AO-9 discusses three specific sets of factors that should be addressed: cost effects, use effects, and risk effects.

Although not included in the adopted version of AO-9, the following formula illustrates the relationship between these effects and the impaired value. The formula was presented at the *Environmental & Property Damages Symposium: Standards, Due Diligence, Valuation & Strategy*, co-sponsored by the Centre for Advanced Property Economics and the Appraisal Institute, Toronto, Ontario, April 2002.

$$\begin{aligned} \text{Impaired Value} &= \text{Unimpaired Value} \\ &- \text{Cost Effects (Remediation and Related Costs)} \\ &- \text{Use Effects (Effects on Site Usability)} \\ &- \text{Risk Effects (Environmental Risk/Stigma)} \end{aligned}$$

Moreover since property value diminution is the difference between the impaired and unimpaired values, the following formula (also not included in AO-9) can be derived:

$$\begin{aligned} \text{Property Value Diminution} &= \text{Cost Effects} \\ &\text{(Remediation and Related Costs)} \\ &+ \text{Use Effects (Effects on Site Usability)} \\ &+ \text{Risk Effects (Environmental Risk/Stigma)} \end{aligned}$$

The 2003 version of AO-9 presents *cost effects* as *deductions for costs to remediate a contaminated property* (AO-9, Lines 170–171). These costs must be costs that affect property cash flows and are *recognized by the market* (AO-9, Line 173), as opposed to all possible costs. Generally costs necessary to achieve regulatory compliance are recognized by the market, but costs for remediation beyond regulatory requirements would not be recognized by typical market participants. The concept of typical market participants and their characteristics is recognized in most definitions of *market value* and is discussed in AO-22, “Scope of Work in Market Value Appraisal Assignments.” *Use effects* are presented as the *impacts on the utility of the site as a result of the contamination*” (AO-9, Line 174), and as the result of a limited future highest and best use (AO-9, Lines 175–176). *Risk effects* are presented as being *derived from the market’s perception of increased environmental risk and uncertainty* (AO-9, Line 178). AO-9 notes that estimating these effects *represent[s] the most challenging part of the appraisal assignment* (AO-9, Line 177), but the opinion cautions that *the analysis of the effects of increased environmental risk and uncertainty on property value (environmental stigma) must be based on market data, rather than unsupported opinion or judgment* (AO-9, Lines 178–180).

Estimating the effects of cost, use, and risk is difficult and often requires specialized valuation

methods and techniques. As stated in S.R. 1-1(a), appraisers *must be aware of, understand, and correctly employ those recognized methods and techniques that are necessary to produce a credible appraisal* (USPAP, Lines 510–512). The Competency Rule reinforces this binding requirement of USPAP. The next column of “Environment and the Appraiser” will discuss these methods and techniques as well as issues surrounding their use in assignments to value contaminated property.

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