

Valuation of Impaired Land: Greenfield Advisors Experience with Contaminated Sites

Vicki Adams, Max Kummerow, John Kilpatrick,
Bill Mundy & Ron Throupe
Greenfield Advisors
2601 4th Avenue Suite 650
Seattle, Washington, USA
www.greenfieldadvisors.com

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Scope of problem

- 30 million chemicals
- Cost pressures to pollute
- Lack of regulation of external costs imposed on environment or other people
- Hundreds of thousands of contaminated sites
- Uncertainty and cost of legal remedies
- Key part of due diligence

Types of property value damages

- Reduced use and enjoyment
- Realized capital loss
 - Sale below market price
 - Delayed sale
 - Property cannot be financed
 - Seller financing
 - Default risk
- Unrealized loss for unsold property
 - Reduction in net worth
 - Loss of liquidity
 - Risk of capital loss if property were sold
 - Change in discount rate (due to perceived risk)
- Robert Simons (2005) *When Bad Things Happen to Good Property*

Table 1 Simplified Version of Detrimental Conditions Matrix Analysis

	Assessment	Repair	Ongoing
Cost	Cost to assess	Remediation cost	Monitoring & maintenance cost
Use	Utility loss and use restriction while assessed	Utility loss and use restriction while under remediation	Ongoing utility loss and use restriction
Risk	Discount when extent unknown	Risk during repairs	Residual stigma risk

Information problems

- Roddewig (1997) “Scientific conclusions about persistence of contaminants do not necessarily correlate with the marketplace’s conclusions about the duration of economic impact on real estate.”
- Winson-Geideman (2005) “The central message is that if buyers of comparable properties have no knowledge of contamination, use restrictions and maintenance procedures associated with contaminated land, the case study approach could produce invalid and unreliable results.”

Information and values

- One should perhaps be a bit uncomfortable with the notion that scientific experts are “wrong” and “the market” is right regarding contamination’s effects on site utility. The market’s evaluation depends not only on (possibly incomplete) knowledge, but also preferences.
- In addition, “framing” can be important. Is contamination framed as a small acceptable risk present to some extent everywhere and an unavoidable side effect of employment, or as a serious health risk that responsible people will avoid at all costs? Same contamination, different interpretation, different value impact.
- Institutions also matter—even a buyer who may personally not consider contamination risk important may be constrained by regulations, deed restrictions, or inability to obtain financing or insurance or influenced by expected effects on property values due to other’s concerns about pollution.

USPAP Advisory Opinion AO-9 concerns appraisal of contaminated properties. It mentions assessments of risks due to:

- 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.

USPAP defines stigma as:

- “An adverse effect on property value produced by the market’s perception of increased environmental risk due to contamination.”

- **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.
- **Unimpaired Value:** “The market value of a contaminated property developed under the hypothetical condition that the property is not contaminated.”
- **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.
- <http://commerce.appraisalfoundation.org/html/2006%20USPAP/ao9.htm#Relevant>

Market value definition=“knowledgeable”?

- In the unimpaired case, obviously assumptions will have to be made about comparable or “control” properties that accurately reflect the hypothetical value of the subject property
- For the impaired or “as is” value, the appraiser will have to determine whether to accept transactions (actual or inferred by comparison to comparable transactions or stated values) versus making some adjustment for imperfect information.

Rule 23 Federal Civil Procedure

- One or more members of a class may sue or be sued as representative parties on behalf of all only if (1) the class is so numerous that joinder of all members is impracticable, (2) there are questions of law or fact common to the class, (3) the claims or defenses of the representative parties are typical of the claims or defenses of the class, and (4) the representative parties will fairly and adequately protect the interests of the class.

Cases and issues 1: Exxon Valdez oil spill

- In March 1989 the tanker Exxon Valdez struck a reef in Alaska's Prince William Sound, spilling of 11 million gallons of crude oil, affecting 1300 miles of coastline extending 470 miles from the spill site. Exxon spent \$2.1 billion and four years cleaning up oil, but oil still remains on some areas. Punitive damages of \$5 billion (reduced to \$2.5 billion, actual damages \$900 million).
- Value of public goods, affected area (oil only or value of contiguous inland areas)
- Highest and best use, wilderness values
- Value of natural environment and ecology
- Value of Native American cultural heritage losses

Phoenix Scottsdale

- Trichloroethylene (TCE) in groundwater, 85000 properties affected
- Evaluating relationship between health risks, perceptions and property values
- Civil procedure mattered—order of three cases, admissibility of evidence, lack of resources of plaintiffs
- Cover-up of toxic water supply discovered by a local “Erin Brockovich” newspaper reporter

Other interesting cases:

- Underground nuclear test
- Uranium mine tailings (radioactive cows)
- Herbicide spill in a salmon river (quick cleanup)
- Lead smelters (persistent contamination)
- Creosote wood treatment plants (DNAPLS)
- LUST cases (leaking underground storage tanks)
- Vinyl chloride in groundwater (underground rent)
- Abandoned refinery & local economic base (long term secondary effects)

Summary

- In the absence of regulation or when regulations fail, the courts provide remedies to protect property rights from pollution and to motivate responsible behavior by polluters who would otherwise be tempted to avoid costs of containing pollutants by imposing external costs on others.
- The science of pollution determines the real extent of health and environmental effects, extent and dispersion of pollution, monitoring and remediation costs. Environmental fate, effects and remedies vary for each type of pollutant. Often this science involves uncertainty about the future environmental fate and effects of particular toxic substances.
- Legal processes, particularly the state and federal rules of civil procedure related to class action treatment of tort claims, play a role in determining the appropriate valuation methods. And valuation methods influence the appropriate legal procedure through the “common issues of fact or law” required for class treatment. “Common issues of fact” may include valuation methods such as pricing models and contamination effects common to a class of properties.
- With limited sales evidence and lack of market information, survey methods (so called “stated values” or “contingent valuation methods”) can be used to enhance understanding of effects on property values and to demonstrate more clearly the relationships between pollution and market behavior.
- Where knowledge of contamination, or evaluation of contamination effects is faulty, courts may validly adjudicate based on reasonable standards of justice, based on assessments of how better informed (“knowledgeable”) markets might react to contamination.

Market value definitions

- USPAP “the relationship, knowledge, and motivation of the parties (i.e., seller and buyer)”
- U.S. GAO Yellow Book “reasonably knowledgeable seller to a willing and reasonably knowledgeable buyer”
- Earlier USPAP “both parties are well informed or well advised”

The courts' role is to provide justice

- The Australian “Spencer Case” of 1902 explicitly includes language similar to “we conceive the sale to have been consummated as if no compulsion, well informed parties” efficient market assumptions.
- Market value definition had its origins in non-market (public taking) transactions, or rather court’s attempts to define conditions whereby a fair price could be determined.
- It seems to us that contaminated sites cases provide the courts with a similar challenge where they sometimes must infer values different from prices based on impaired information.