

Appraising Special-Purpose Industrial Facilities for Ad Valorem Purposes

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Appraisers and county tax assessors are devoting more attention to methods of appraising special-purpose industrial properties for ad valorem purposes. Such properties include large-scale manufacturing facilities, petroleum refineries, chemical-processing plants, and municipal and hazardous waste landfills and incinerators.

The money at stake is driving the increased attention. A single facility can generate millions of dollars of tax revenues annually. Understandably, owners of these properties want to reduce their tax burden as much as possible, while local assessors and tax appraisers may feel pressure to maintain or increase the tax valuation base. It may be difficult for special-purpose industrial facilities to garner public support for a tax reduction. Although the facilities provide a large base of employment to a community, they often are unpopular because of pollution issues.

Most special-purpose industrial properties are not suited to mass appraisal techniques. The county or municipal tax assessor's office, however, may lack the manpower and time needed to render a fully supportable opinion of value. Owners of special-purpose industrial properties want to pay as little in property taxes as possible, but may fail to properly evaluate the accuracy of the assessor's estimate of value. Estimates of value sometimes rely on business enterprise valuations that overestimate the value of the tangible real property, virtually by definition. Also, owners may not accurately account for (or ignore altogether) several elements of depreciation and operational/environmental compliance requirements that have a dramatic impact on value. Unaccounted-for costs can include functional obsolescence of the facility due to changing regulations, amortization of closure and post-closure costs, and the cost of operating in a volatile market.

This article will discuss these issues and their effects on the valuation of special-purpose industrial properties for ad valorem purposes.

abstract

As counties and municipalities struggle through tough economic times, the appraisal of special-purpose industrial properties for ad valorem purposes has become increasingly contentious. Adjustments to the assessed value of a single property can result in gains or losses of millions of dollars to taxing jurisdictions. This article discusses why, for ad valorem purposes, most special-purpose industrial properties are overvalued. It further discusses the valuation of special-purpose industrial properties, and describes why a supportable value conclusion often cannot be developed using the sales comparison or income capitalization approaches.

Literature Review

Several recent articles have grappled with the difficulty of dividing business value from real property value and whether they are divisible at all. In "How Business Enterprise Value Applies in Nearly All Appraisals,"¹ Owens discusses issues of "business enterprise value" (BEV) in real property valuation and the arguments for accepting BEV in the realm of ad valorem taxation (for example, as a deduction from going-concern value to estimate real property value). Owens argues that in some cases, "the business enterprise is inextricably linked to the real estate" and that "no division of the defensible means of splitting the real estate value from the enterprise value is available beyond the value deduction associated with a market-based management fee." In "Real Estate and Business Valuation: A New Perspective,"² Benson provides a new conceptual and mathematical framework called the "Bridge Model." This model takes the contemporary approach that "business value is a separate entity, the value of which is properly attributed to entrepreneurship, and not realty," rather than the classical approach that treats business value as an enhancement attributable to the real estate.

The article "Business Enterprise Value Debate: Still a Long Way to Reconciliation,"³ by Lennhoff, resulted from a debate at a national meeting of the Appraisal Institute. Several MAIs and other real estate professionals provided differing opinions regarding how to separate business and real estate value (as required by the *Uniform Standards of Professional Appraisal Practice* [USPAP]), the identification of non-realty elements of value, the application of business enterprise value in the valuation of some types of real estate, and the acceptance of BEV by courts. Clark and Knight in their article "Business Enterprise Value in Special Purpose Properties"⁴ propose a new method for estimating BEV in such properties. They also acknowledge the difficulties that spe-

cial-purpose properties present in terms of applying the three approaches to value.

Two recent articles deal with the issue of estimating functional obsolescence. A detailed, technical examination of estimating functional obsolescence is contained in a two-part article by Laronge and Vandell entitled "Solving the Functional Obsolescence Calculation Question?"⁵ The article "Appraising Industrial Special-Purpose Properties,"⁶ by Crawford and Slade, provides a new technique for estimating economic obsolescence based on rates of utilization and operating leverage.

The Money at Stake

In 1997, property taxes represented 73% of total tax collections for municipalities in the United States.⁷ From 1980 to 2001, property tax receipts increased 95% in real terms. Receipts grew 3.2% annually, ahead of the 3.0% growth in real income.⁸ Since large industrial and special-purpose facilities are among the most valuable properties in the United States, they usually pay the most in property taxes. A Rutgers University study of Newark, New Jersey, found that almost 20% of the city's total property tax revenue was funded by ten entities, most of which were industrial.⁹ In Corpus Christi, Texas, Koch Industries' facility was valued at \$639 million and owed approximately \$17 million in property taxes in 2001.¹⁰ The county's tax base was slightly over \$10 billion, so the Koch facility comprised over 6% of the entire value of the county. Two power-generating firms combined to pay approximately 2.5% of the total property taxes in San Diego County, California in 2000.¹¹

In smaller cities and counties, large facilities may contribute an even higher proportion of total revenue to various taxing districts. For example, a 1997 appraisal of a hazardous waste incinerator/disposal facility in southeast Texas found that the facility generated 15% of the total tax revenue for the local school district.¹²

1. Robert W. Owens, "How Business Enterprise Value Applies in Nearly All Appraisals," *The Appraisal Journal* (April 1998): 117-125.

2. Martin E. Benson, "Real Estate and Business Value: A New Perspective," *The Appraisal Journal* (April 1999): 205-212.

3. David C. Lennhoff, "Business Enterprise Value Debate: Still a Long Way to Reconciliation," *The Appraisal Journal* (October 1999): 422-428.

4. Stephen R. Clark and John R. Knight, "Business Enterprise Value in Special Purpose Properties," *The Appraisal Journal* (January 2002): 53-59.

5. Joseph A. Laronge, "Solving the Functional Obsolescence Calculation Question?" part 1, *The Appraisal Journal* (July 2000): 327-339; Joseph A. Laronge and Kerry D. Vandell, "Solving the Functional Obsolescence Calculation Question?" part 2, *The Appraisal Journal* (April 2001): 152-159.

6. Robert G. Crawford and Barrett A. Slade, "Appraising Industrial Special-Purpose Properties: A Utilization Based Measure for Estimating Economic Obsolescence," *The Appraisal Journal* (April 2001): 161-173.

7. Michael Fitzpatrick Lorelli, "State and Local Property Taxes," *Tax Foundation Special Report*, no. 106 (August 2001).

8. *Ibid.*

9. Gerald Miller, "Fiscal Health in New Jersey's Largest Cities," Joseph C. Cornwall Center for Metropolitan Studies, Rutgers University (June 2001).

10. Andrea Jares, "Port Firms Pay Most Property Tax," *Corpus Christi Caller Times*, 27 February 2002.

11. San Diego Regional Economic Development Corporation, *San Diego Book of Facts* (San Diego: Regional Economic Development Corporation, 2001).

12. Austin Valuation Consultants appraisal of a hazardous waste disposal facility near Beaumont, Texas, see *Chemical Waste Management, Inc. v. Jefferson County Appraisal District*, Cause Number A155449, District Court of Jefferson County, Texas.

Accurate and supportable appraisals of these properties are of critical importance. For these properties, battles over taxes and fair assessments of value concern more than just money. Dramatic changes in taxes paid by these properties may have political ramifications and can affect entire communities.

Approaches to Value

As noted previously, mass appraisal techniques are not suitable for most heavy-industrial or special-purpose properties. Such properties are relatively rare, their comparable market area is often very large (possibly including the entire United States), and their specialized designs inhibit broad comparisons to superficially similar properties. Unfortunately, these same problems extend to standard, three-approach valuations. The following examines the problems in using these approaches for property tax valuation and discusses why the cost approach is most suitable for these kinds of properties.

The Sales Comparison Approach: Why It Almost Never Works

Other articles have discussed the often insoluble problems in appraising large special-purpose industrial facilities via the sales comparison approach. Problem areas include the following:

- **Lack of Transactions.** Heavy-industrial facilities, especially very large and/or single-purpose facilities, sell very infrequently. Also, they often sell under less than fully arms-length conditions.
- **Lack of Transactional Data.** Nondisclosure agreements or general unwillingness by the involved parties to disclose sufficient information may further reduce the appraiser's database of sales.
- **What Is Actually Purchased.** Purchases of special-purpose industrial facilities often involve equipment and inventory and may also involve transfers of stock and assumption of debt.
- **Goals of the Buyer.** Companies purchasing these facilities usually intend to increase the cash flow of the business. What they are often purchasing are synergistic intangibles that are not part of the real estate or personalty itself. The cost of the real estate itself usually is not the primary concern to most purchasers of special-purpose industrial facilities.
- **Market Conditions.** For many types of industries, the business climate is extremely volatile

and differences in value among regions of the country can be very large.

These factors and others severely restrict the applicability of the sales comparison approach in evaluating special-purpose industrial properties.

The Income Capitalization Approach: Why It Often Does Not Work

The income capitalization approach often does not work in the valuation of special-purpose industrial facilities. Specific difficulties that impact the income capitalization approach include problems related to estimating rental revenue, industry volatility, state laws, and environmental costs.

Problems in Estimating Rental Revenue

The Appraisal of Real Estate states, "To apply any capitalization procedure, a reliable estimate of income expectancy must be developed."¹³ Estimating rental revenue for heavy-industrial facilities that are owner occupied presents an extremely difficult challenge to the appraiser—particularly if the facilities are special use and single purpose. The primary problem is that the gross revenue accrued to the facility is based on the facility's output or service, thus entailing a business value rather than a property value. Business value encompasses non-realty items such as equipment and inventory along with numerous intangibles such as goodwill, management and labor skill, working capital, patents and trademarks, and agreements with other businesses. Rented facilities present their own difficulties. While the appraiser should consider the contract rent in evaluating the property on a leased fee basis, determining the economic rent can be problematic. Specialized and single-purpose properties present a problem in that they are far less likely to be leased. Likewise, leases of similar properties are far less likely to be available and often are not arms-length. If the rental income cannot be predicted with any reasonable degree of accuracy, the applicability of the income approach to an estimate of value is dubious.

Industry Volatility

When appraising a currently viable special-purpose or single-purpose property, the appraiser may have to assess the future of an industry that is so volatile as to defy prediction. For example, consider the oil industry, where during the past ten years the price of West Texas Intermediate crude oil (WTI) has

13. Appraisal Institute, *The Appraisal of Real Estate*, 12th ed. (Chicago: Appraisal Institute, 2001), 497.

ranged between \$11 and \$34 per barrel.¹⁴ During any given twelve-month period, the WTI price has varied by as much as \$14.50 per barrel but never less than \$2.50 per barrel. A comparison of U.S. Department of Energy (DOE) predictions of future oil prices to actual prices indicates that the DOE cannot predict prices with much accuracy even one year in advance, and that there is no correlation at all between its predictions five years into the future and eventual prices. Predictions by other governmental agencies and private brokerages are similarly inaccurate. Even oil companies cannot predict the future with much accuracy. Robert Jennings, president of Jennings Capital, Inc., made perhaps the most honest prediction of oil prices during a slide presentation at an industry meeting in Calgary in November 2001: his forecast of 2002 oil and gas prices contained only question marks.¹⁵ These examples of forecasting are not intended to deride those making the predictions. The point is that given the numerous and volatile factors affecting oil prices, projecting future oil prices is a nearly futile endeavor.

The market for disposal of hazardous industrial waste has experienced similar volatility. In 1984, the U.S. Congress passed the Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA)¹⁶ The HSWA placed stronger restrictions on in-ground disposal, indirectly making incineration a more viable and profitable option. However, by the early 1990s the market for incineration had declined dramatically; the price for incineration of solid waste fell by 25% from 1991 to 1993.¹⁷ In 1993, the Environmental Protection Agency (EPA) published new guidelines extolling recycling and on-site recovery of hazardous wastes, while at the same time several studies questioned the ability of most incinerators to meet the requirements of the Clean Air Act.¹⁸ These factors further reduced the long-term demand for incineration facilities. Although rental income for these kinds of properties is not based directly on revenue derived from the property, it is at least partially based on its putative profitability.

State Laws

State laws also may invalidate the income capitalization approach for property tax purposes. For example, New Jersey and Florida explicitly prohibit the use of the income capitalization approach in evaluating refineries and certain other special-purpose industrial facilities for ad valorem purposes. The primary reason for this prohibition is the aforementioned difficulties in assigning business-derived income to real estate. Some courts have determined that the income capitalization approach is inapplicable for properties in which income is attributable jointly to the real estate and the business, and when the rental income cannot be identified.¹⁹ Hence, in these states an appraiser could not employ the common tactic of deducting a "business enterprise royalty" from the annual income. Again, the key is the ability to identify rental income in the market. In some cases (municipal solid-waste landfills, for example), market data may be readily available and a supportable rent-to-land technique employed. This technique uses a rate of return derived from leases of comparable properties and results in an estimate of real property value separate from the value of the going concern.

Special Environmental Costs

Large-scale facilities such as refineries and hazardous waste incinerators and landfills have inherent environmental risks. They receive much closer scrutiny by government agencies than a typical property and are subject to special environmental costs. These costs are usually quite substantial and play a large role in the evaluation of a facility for property tax purposes. In Texas, the appraiser must consider these costs explicitly. The Texas Property Tax Code states, "In appraising real property that the chief appraiser knows is subject to an environmental response requirement, the present value of the estimated cost to the owner...is an appropriate element that reduces market value and shall be taken into consideration by the chief appraiser..."²⁰ Special environmental costs to the owner include permitting costs,

14. State of Alaska, Tax Division Online, 2003, <<http://www.tax.state.ak.us/PRICES/otherprices>>.

15. See Lily Nguyen, "Oil Price Plays Havoc With Planning," *The Globe and Mail* (Toronto), 26 November 2001.

16. Resource Conservation and Recovery Act, U.S. Code 42 §§ 6901 et seq.

17. U.S. Environmental Protection Agency, Waste Management Division, Office of Solid Waste, *Strategy for Hazardous Waste Minimization and Combustion*, EPA530-R-94-044, (November 1994).

18. Clean Air Act, U.S. Code §§7401 et seq.

19. *Coastal Eagle Point Oil Company v. West Deptford Township and Westville Borough*, 15 NJ Tax 190 (App. Div. 1995).

20. Texas Property Code section 23.14(b).

closure costs, and post-closure costs. These costs and the problems associated with estimating them are described below.

Permitting Costs. Permitting costs are the costs of acquiring and renewing necessary permits over the life of the facility. For example, any facility in Texas that generates airborne contaminants must obtain a permit from the Texas Commission for Environmental Quality (TCEQ). The permit must be renewed every five years. These regulations are anything but static. Between May 2001 and October 2002, TCEQ issued eleven updates or changes to statutes affecting properties generating airborne contaminants.

New facilities are constructed to comply with the regulatory requirements at the time they are built. Most special-purpose industrial facilities require many permits, such as federal RCRA permits, separate permits for air and groundwater discharges, and local permits. Since the applicable regulations change constantly, new facilities often are functionally obsolete by the time renewal permits are required (unless “grandfather” clauses apply). This special type of obsolescence will be discussed later.

Closure Costs. Closure costs are the costs associated with decontamination and removal of buildings, tanks, pipes, pumps, capping of landfills, etc. in a legal and environmentally sound manner. Closure costs are incurred annually whenever a facility closes an operating unit. Compliance with these regulations cannot be ignored or postponed.

Post-Closure Costs. Post-closure costs are the costs of monitoring a closed facility for environmental safety. Activities include monitoring of groundwater and soil, maintenance of drainage, security, and report preparation. For some facilities such as hazardous waste incinerators and landfills, the post-closure period extends to thirty years and beyond, even if the facility is free of environmental problems. These costs can run into the tens of millions and even hundreds of millions of dollars for just one facility. For example, a hazardous waste incinerator/landfill facility appraised in 1996 had closure and post-closure

costs of approximately \$77 million. By the time the facility was expected to shut down in twenty years, those costs were projected to be over \$125 million.²¹

By federal law, companies must provide financial assurance for closure and post-closure costs. Unocal, a petroleum exploration and refining corporation, spent \$175 million on environmental matters in 2001 and \$160 million in 2000.²² Unocal holds \$237 million in reserve for future remediation obligations, \$87 million of which applies to inactive or closed facilities. During some fiscal years, Unocal has spent more money on closed facilities than active ones. Unocal’s 2001 Form 10-K notes the ever-changing regulatory landscape by stating, “In many cases, investigatory or remedial work is now required at various sites even though past operations followed practices and procedures that were considered acceptable under environmental laws and regulations, if any, existing at the time.”²³

The financial assurance requirement gives companies and government agencies (and even appraisers) a firmer grasp on a property’s closure and post-closure obligations, but these assurances and estimations of future liabilities are by no means certainties. Unocal admits as much in its 2001 Form 10-K stating, “The ultimate costs to be incurred could exceed the total amounts reserved” and “...the Company is not yet in a position to estimate all, or in some cases any, possible additional costs.”²⁴

The uncertainties regarding permits, closure costs, and post-closure costs combine to diminish the accuracy of the income capitalization approach in estimating the value of special-purpose industrial properties. At the least, the appraisers employing a discounted cash flow analysis should consider using a shorter time period, perhaps as little as three years. Estimating rent on an economic rather than contractual basis and costs beyond a few years may devolve into a guessing game.

Regarding valuations for property tax purposes, the amortization and deduction of these costs from the value of the facility are of primary importance. Consider the hazardous waste incinerator/landfill mentioned previously. Its cost, as new, was approximately \$117 million, and its depreciated replacement cost was approximately \$92 million. Meanwhile, the present value of the future environmental

21. *Chemical Waste Management, Inc. v. Jefferson County Appraisal District*.

22. Unocal Corporation, Form 10-K/A, 20 September 2002.

23. *Ibid.*

24. *Ibid.*

liabilities associated with the facility was \$32 million, over one-third of its depreciated value.²⁵ These costs accrue to the property itself; environmental costs can be transferred to a different owner but not to a different property.

The Cost Approach: Why It Is Usually the Best Approach

The cost approach, usually the least applicable method when evaluating older properties of any type, gains much more importance when appraising viable special-purpose industrial properties. The income capitalization approach asks (in part), what income could this property generate? However, it requires what may not be possible—the separation of business income from realty income and accurate estimates of future rents. The sales comparison approach asks, for what have similar properties sold? This approach requires more transactional data than may be available.

The cost approach begins with much more basic questions than the other approaches: what comprises the tangible real property and what is there physically? The other approaches begin with the combined entity of the business and real estate and force the appraiser to remove the business from the equation. The cost approach does the opposite, beginning with the land and allowing the appraiser to build the improvements up from there. Business-only items such as leasehold improvements, equipment, inventory, and intangibles need never be considered.

The cost approach is not without its own set of potential problems. For one, the appraiser must carefully consider the use of reproduction cost versus replacement cost. Using replacement costs will often be insufficient, as new regulations will have rendered older improvements obsolete. If adequate data is available, the appraiser can use a combination of reproduction and replacement costs. Also, the cost approach must still consider issues of permitting costs and closure/post-closure costs, as described previously. These issues as they relate to the cost approach are discussed next.

Functional Obsolescence

As noted earlier, changes in requirements for updating operating permits are a form of functional obso-

lescence. Arguably, these changes could be considered external rather than functional obsolescence because the changes are government mandated. Either categorization affects the income stream and value similarly.

Refineries are one example of facilities vulnerable to this type of functional obsolescence. Refineries were affected when from 1989 to 1994 the United States instituted four major changes concerning the composition of motor vehicle gasoline.²⁶ In addition, “environmentally-related investment by the major domestic refineries increased almost 400% between 1988 and 1992, rising from \$0.56 billion to \$2.69 billion.”²⁷ The EPA demands for regional and seasonal “boutique” gasolines have created additional functional obsolescence, as these demands have increased processing times, required additional storage facilities, and complicated logistics of delivery. The EPA requirements for reduced sulfur content in gasolines by 2004 have also increased obsolescence in existing facilities.

For the appraiser, calculating the effects of this form of functional obsolescence on property value is very difficult. The appraiser should research upcoming permit requirements, not only to estimate the cost of bringing the property into compliance with current regulations, but in consideration of the possibility of additional costs necessitated by future regulations. If this possibility is not actively considered, the appraiser at the least must acknowledge in the report that future changes to regulations and permit applications could substantially affect property value. Another factor to consider is whether changing regulations have forced the property to operate at less than full capacity. Assuming that economic conditions would warrant operating at full capacity notwithstanding those regulations, the facility may suffer even more obsolescence.

External Obsolescence

Facilities handling municipal solid wastes or any hazardous wastes, properties with underground storage facilities, mines, and certain other properties must provide financial assurance for closure and post-closure costs as required by RCRA. In the case of landfills, federal law requires a post-closure monitoring period of thirty years. These costs can substantially decrease the value of the property. XL En-

25. *Chemical Waste Management, Inc. v. Jefferson County Appraisal District*.

26. Tancred C.M. Lidderdale, *Environmental Regulations and Changes in Petroleum Refining Operations*, U.S. Department of Energy (1 November 1999).

27. Neal C. Davis, *U.S. Petroleum Refining and Gasoline Marketing Industry*, U.S. Department of Energy (5 November 1997).

vironmental reports that the cost to close a municipal waste landfill is approximately \$150,000 per acre and that post-closure costs are \$2,000 per acre per year.²⁸ Thus, capping a 100-acre landfill would cost \$15 million plus \$6 million (unadjusted for inflation) in post-closure costs. The costs for hazardous waste facilities are dramatically higher.

If the property is subject to RCRA regulations, the facility's owners must provide financial assurance in one of the following six ways:²⁹

1. A trust fund maintained with annual deposits
2. A surety bond guaranteeing payment into a trust fund
3. A surety bond guaranteeing performance
4. An irrevocable standby letter of credit
5. Insurance
6. A financial test and corporate guarantee

With the estimations of future closure and post-closure costs and records of financial assurance, the appraiser should be able to estimate the present value of this form of external obsolescence and deduct it from the value of the property.

Conclusion

When performing an appraisal of a special-purpose industrial property for ad valorem tax purposes, the appraiser must carefully consider the applicability of each of the three approaches to value. The appraiser must not apply approaches that would indicate a misleading or speculative value conclusion. Further, the appraisal must comply with the requirements of the local tax code.

In appraisals of special-purpose industrial properties, the cost approach best considers the relevant depreciation and environmental response costs and should yield the most reliable, supportable, and replicable value conclusion. Such a conclusion is the standard by which the courts determine the admissibility of such opinions.

Additional Reading

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28. Steve Yula, "New Financial Assurance Requirements for Closure and Post-Closure of Municipal Landfills: Impact on Disposal Costs," XL Environmental, <<http://www.xlenvironmental.com/library/landfil.htm>>.

29. U.S. Environmental Protection Agency, "Financial Assurance Mechanisms for Corporate Owners and Operators of MSW Landfill Facilities," 40 Code of Federal Regulations Part 258, (10 April 1998).