

OPINION

# Landfill brownfield snags are surmountable

By Mike McLaughlin and Dan Johnson

There has been much recent interest in reclaiming real estate formerly occupied by municipal landfills. For years, closed landfill sites were used, if at all, for passive recreation. Over the last 25 years, however, an increasing number of closed landfills have been used for a variety of industrial, commercial and residential purposes.

Throughout North America, agencies of federal, state and local governments have begun new initiatives to redevelop brownfields, or sites that are "tainted" environmentally. In many respects, closed landfills are classic brownfield opportunities. They often are near good transportation and other public infrastructure. Despite attractive locations, closed landfills often are regarded as too affected by environmental challenges to be redeveloped. Experience shows otherwise, if legal and technical issues are properly addressed.

Recent changes to the Comprehensive Environmental Response, Compensation, and Liability Act — commonly known as Superfund — offer liability protection for those who can qualify as bona fide prospective purchasers of property where releases of hazardous substances may have occurred. Under Section 222 of the Small Business Liability Relief and Brownfields Revitalization Act, a prospective purchaser can receive liability protection if specific conditions are met. A purchaser of a closed landfill site probably can meet these conditions, provided that they take reasonable steps to mitigate the hazards presented by developing such a site.

Municipalities face liability under a variety of theories if they allow development on "the old town dump" without requiring appropriate mitigation, including measures to address problems presented by settlement, foundation support, and gas generation.

As waste decomposes, landfill gas, which consists of methane and carbon dioxide, is produced. If allowed to accumulate within a confined area in the presence of an ignition source, methane can explode. Any improvements constructed on or near a landfill should incorporate appropriate landfill gas protection measures.

Several approaches are available to protect structures from landfill gas. Active control technologies include landfill gas extraction to remove gases before they reach structures, and air injection or air curtain systems to

## GUEST VIEW

create positive pressure to drive gases away from structures.

Passive control technologies include the use of membrane barriers and vents to prevent gases from entering structures, and monitoring and alarm systems to warn of accumulating gases. Passive systems are commonly used where the landfill is old and most

of the decomposition has occurred.

As it ages, solid waste in a landfill decomposes and consolidates. Active settlement can take place for many years, depending upon the depth of the trash fill, the types of waste present, and the method of placement. Before buildings or other improvements can be constructed on a landfill site, esti-

mates of expected settlement must be made based upon experience, empirical settlement observations and numerical models.

Landfills contain wastes, some of which may be hazardous. Older landfills can contain a variety of industrial wastes such as solvents and sludges which require special handling and care if excavated.

The challenges inherent in development of a closed landfill can be significant. Experience has shown that technical challenges

such as settlement, deep foundations, and gas protection can be met. Legal liability challenges continue to present impediments to landfill redevelopment. However, recent policy initiatives suggest that such impediments also can be overcome. ■

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