

## **Selection of an Independent Consultant to Review the Potential Impacts of a Proposed Landfill**

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An issue that is frequently raised by those concerned about the potential impacts of a particular new landfill or landfill expansion is whether an evaluation/discussion of the potential impacts by a consultant hired by a landfill proponent or appointed by a regulatory agency/board can be relied upon to be truly independent, unbiased and comprehensive. Of particular concern is whether a consulting firm that typically does work with landfill proponents can be expected to provide an independent, comprehensive review of the potential near-term and long-term impacts on public health, groundwater and surface water resources, air quality and the interests of those within the sphere of influence of the landfill. Conversely, there can be questions about whether a truly unbiased and comprehensive review can be expected from a consultant working on behalf of an agency/group with a mission to prevent any new landfilling or landfills in particular "backyards." We have been involved as advisors and technical consultants in matters of regulations for, and potential environmental quality and public health impacts of, landfills for more than 20 years. During that time we have reviewed more than 80 landfills and have worked with several state regulatory agencies in crafting, evaluating, and revising landfilling regulations. We have also conducted research on behalf of the US EPA and industry on landfill liner integrity issues. On the basis of this experience, we offer the following observations on the subject of "independent" reviews of landfill impacts.

It should be acknowledged that landfills are, and will continue to be, needed for the disposal of non-recyclable, non-reusable waste. It also must be acknowledged that wastes buried in landfills will be a threat to public health and environmental quality until they are completely fermented and leached of hazardous and otherwise deleterious components. In a dry tomb type landfill this can be effectively forever. The challenge and key for protection of public health and environmental quality is to ensure a thorough, technically valid, comprehensive assessment of the ability of a proposed landfill site and the associated buffer lands, in conjunction with the design and development of the landfill and assurances for reliable operation, closure, monitoring, maintenance, and post-closure care and remediation, to be protective for as long as the wastes in the landfill are a threat. The difficulty in obtaining such assessment depends upon primarily three factors.

First, an overriding influence is that the permitting of landfills is typically conducted in an adversarial arena which defines and pits one "side" (landfill proponents) against the other (those apposed to the landfill). By adversarial rules, the landfill proponent and its consultants present information in support of the landfill without identifying or discussing the potential deficiencies, shortcomings or problems of the landfill any more than necessary, and downplaying them to the best of their ability. It is up to those questioning, challenging or opposing the landfill to discern, evaluate and discuss the potential problems of the landfill.

Second, and related to this adversarial arena, is the reality that a consulting firm that does not present its landfill developer/advocate client's position in that one-sided adversarial context, cannot expect to gain future work on landfill development from that or similar landfill development interests. The pitfalls associated with achieving the reliable expression of science and engineering in the adversary system are well-recognized in the environmental field. At the suggestion of a member of the American Society of Civil Engineers Ethics Committee, we discussed this issue in our review,

Lee, G. F. and Jones-Lee, A., "Practical Environmental Ethics: Is There an Obligation to Tell the Whole Truth?" Published in condensed form "Environmental Ethics: The Whole Truth," Civil Engineering, Forum, 65:6 (1995). <http://www.gfredlee.com/ethics.htm>.

The third factor affecting the presentation of a thorough, technically valid, comprehensive assessment of the potential environmental quality and public health impacts of a landfill is the lack of long-term experience with many of the approaches and landfill containment materials being used and proposed for use in such facilities. Many decisions, specifications, and arguments are made based on what may be theoretically possible, predicted by less than adequate modeling, or achieved in laboratory studies conducted under conditions that do not represent the actual conditions that will exist at the proposed landfill site. The duration of the laboratory studies is exceedingly short compared to the time that the liner and cover systems must work perfectly – i.e., for as long as the wastes in the landfill will be a threat. Lacking is real-world experience of the use, evaluation, maintenance, and monitoring of the materials and approaches for the hundreds to thousands of years over which they will need to endure, and for which funding needs to be provided, to protect public health and the environment. Also lacking is an ability to see into the future to be assured that reliable pre-emption and funding will be dispatched as needed tens, hundreds, or thousands of years hence when and as landfill containment (liner and cover) systems fail. This situation is particularly important for landfills that are proposed/ developed by private companies.

While it is claimed by public/private landfill developers that a proposed landfill will meet all existing regulations, it should be understood that current federal and state landfilling regulations do protection of those within the sphere of influence of landfill active life emissions (such as odors, landfill gas, escape of fugitive wastes - litter, etc.) with adequate buffer lands between where wastes are to be deposited and adjacent property lines. As a result, emissions from today's municipal solid waste landfills are not precluded from trespassing onto adjacent properties, to the detriment of the adjacent property owners/users. This situation leads to a justified NIMBY ("Not In My Back Yard") from those who are potentially impacted by a landfill.

We have developed a comprehensive review of many of the key potential problems of today's Subtitle D (municipal solid waste) landfills:

Lee, G. F. and Jones-Lee, A., "Flawed Technology of Subtitle D Landfilling of Municipal Solid Waste," Report of G. Fred Lee & Associates, El Macero, CA, December (2004). Updated March (2006).  
<http://www.members.aol.com/apple27298/SubtitleDFlawedTechnPap.pdf>.

A consultant bearing the responsibility to conduct an independent, comprehensive review of environmental quality and public health implications of a proposed landfill needs to address and reliably discuss the issues raised in our "Flawed Technology" review. It is suggested that one way to potentially evaluate the ability of a proposed "independent consultant" to conduct a technically valid, comprehensive review of the potential impacts of a proposed landfill is to review the consultant's past landfill review reports to see if, and how well, those aspects have been discussed.

Over the years we have been involved in reviewing potential landfill impacts for water utilities, cities, counties and others who are concerned about obtaining a truly independent assessment of the potential problems of a landfill. Examples of our landfill reviews, which incorporate the types of discussion that should be presented in an independent landfill review, are on our website, <http://www.gfredlee.com/plandfil2.htm#examples>.

While each landfill is a somewhat different situation, there are common problems that landfill proponents often fail to address in their review of proposed landfills, including

- the need for adequate buffer lands to dissipate releases from the landfill on landfill property (i.e., no trespass onto adjacent properties),
- the eventual failure of the landfill liners and cover, as well as the inability to reliably detect when failure occurs,
- the unreliability of groundwater monitoring systems to detect liner failure before offsite groundwater pollution occurs,
- the inadequate approach that is used to investigate the pollution of groundwaters by municipal solid waste leachate with respect to measurement of the potentially hazardous or deleterious chemicals in leachate-polluted groundwaters (where only 100 or so chemicals are measured out of the many thousands that are present in leachate that have the potential to be adverse to public health and/or the environment),
- the duration of time that the wastes in a landfill will be a threat to produce leachate and landfill gas,
- the unreliability of assured postclosure funding for monitoring and maintenance of the containment systems, etc., for as long as the landfilled wastes will be a threat, and
- adverse impacts on nearby property values.

All of these issues, as well as others that are discussed in our “Flawed Technology” review, should be discussed in a credible review of the potential impacts of a proposed landfill. In addition to discussing these issues, our writings on [www.gfredlee.com](http://www.gfredlee.com) include discussion of how landfills can and should be developed that are protective of public health, groundwater and surface water resources, air quality and the interests of those owning or using properties within the sphere of influence of a particular landfill.