

Comments on “Potential Impact by the Old Gentilly Landfill on the Environment Due to the Placement of the New Type III C&D Landfill – Document Review,” Prepared by NISTAC, Dated February 8, 2006

Comments Submitted by
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The Federal Emergency Management Agency (FEMA) requested that National Infrastructure Support Technical Assistance Consultants (NISTAC) evaluate the potential problems associated with placing city of New Orleans hurricane-source debris (Katrina wastes) on the former Old Gentilly Municipal Solid Waste Landfill. NISTAC prepared an 88-page report on this issue, which was released on February 8, 2006. Presented herein is a review of the NISTAC report focusing on environmental and public health impact issues..

This review is based not only on reviewing the NISTAC report, but also includes Dr. Lee's previous involvement on behalf of Louisiana Environmental Action Network (LEAN) in January/February 2006 in reviewing the public health and environmental problems potentially associated with placing New Orleans Katrina wastes on the Old Gentilly landfill. Dr. Lee's February 2006 review included a detailed review of the reports available at that time on the characteristics of the Old Gentilly landfill, the Louisiana Department of Environment Quality (LDEQ)'s reports and orders pertinent to this landfill, and a site visit to the landfill, where Dr. Lee observed the types of Katrina wastes being deposited on top of the Old Gentilly landfill. In connection with his review, Dr. Lee prepared an affidavit that was submitted to the Louisiana state court associated with pending litigation filed by LEAN against LDEQ. LDEQ deposed Dr. Lee concerning the statements made in his affidavit. Subsequently, this affidavit was converted into a report (Lee 2006a). Prior to reviewing the NISTAC report, I was unaware of this firm and have no previous or subsequent contact with it.

On pages 1-1 and 1-2 of the NISTAC report Executive Summary, NISTAC states in part,

“NISTAC identified general technical concerns related to facility management, and permitting, closure, and technical reporting issues. Of specific concern was the lack of environmental site characterization data adequately defining the local geology and existing groundwater conditions. The need for a better definition of these conditions was magnified since the site was permitted to accept and dispose of a significant quantity of additional wastes to be placed on top of the old wastes. LDEQ regulations require specific environmental actions be conducted to evaluate similar sites to develop a technical understanding of site conditions, specifically regarding geologic and hydrologic site conditions relative to potential environmental impacts.

In general, NISTAC noted the following deficiencies or inconsistencies regarding the landfill's groundwater monitoring system wells.

- *There were not enough wells to adequately represent groundwater quality or detect groundwater impacts over such a large facility area;*
- *The wells were not installed at appropriate locations to confirm, with a high degree of certainty or confidence, that representative groundwater quality at relevant downgradient points-of-compliance from the waste unit had not been impacted by a potential release;*
- *The wells were not installed to depths that give confidence in the represented groundwater flow directions of the upper aquifer, and were not installed to evaluate groundwater flow or potential impact to underlying aquifers;*
- *Recent analytical data for groundwater collected from eight temporary groundwater wells in the landfill area indicated elevated dissolved petroleum organics were discovered within the Old Landfill leachate fluids. Over the 15-year period of routine groundwater sample events, the six permanent groundwater monitoring wells were not analyzed for a range of critical organic chemicals. Therefore, there is no degree of certainty or confidence that the upper aquifer or deeper aquifers have not been impacted from dissolved organic contaminants of concern.*
- *The wells were not tested or evaluated to determine or confirm that the local aquifer zones are hydraulically interconnected or are potentially influenced by tidal fluctuations within the facility's boundary.*

With respect to the landfill design and construction, NISTAC concludes the following landfill design/construction items are in question:

- *The viability of the roughly compacted 1.5-foot to 2-foot thick closure cap under the anticipated loads placed on it by the New Landfill;*
- *The viability of this same cap to act as a viable cap/liner under a waste loading (disposal) rate 10 to 20 times that originally permitted;*
* * *
- *No provisions were included in the landfill design allowing for venting of landfill gasses from beneath the Old Landfill's closure cap, potentially producing unsafe operating conditions at the site;*

After review of available site data, NISTAC has identified the following key areas of concern that could potentially contribute to FEMA's environmental liability and risk at this site:

- *the potential for groundwater contamination due to the release of the Old Landfill's leachate;*
- *the potential for surface water run-off contamination from both the New Landfill operations and from the Old Landfill leachate being released at the ground surface due to the release of compaction waters (leachate) of consolidation;*
- *uncontrolled explosive and/or fire source gasses being emitted from both landfills; and*

- *potential damage to the old landfill cap/new landfill liner due to settlement and stability of the new landfill on top of the old landfill.*

Based on these findings, NISTAC concludes that FEMA could potentially be exposed to high risk of future environmental liability based on current conditions and environmental history of this site.”

Based on my review of the NISTAC report and supporting reports referenced therein, and my independent review of the bulleted items presented above, I conclude that NISTAC’s findings are technically correct and appropriate. Based on the current information, it is inappropriate to place large amounts of C&D Katrina wastes on top of the Old Gentilly landfill. This approach could readily lead to significant additional pollution that is a threat to public health and the environment.

A deficiency of the NISTAC report is its failure to discuss what is known about conventional C&D wastes’ generating leachate that can cause significant groundwater pollution. These issues have been reviewed by the US EPA (ICF 1995a,b) and the Ohio EPA (2005). The NISTAC report should have included a discussion of the potential for conventional C&D wastes to generate leachate that represents a significant potential for groundwater pollution.

There is increasing evidence that components of conventional C&D wastes can readily contain hazardous chemicals. An example is the recent finding of polybrominated diphenyl ethers (PBDEs) as widespread environmental pollutants that are accumulating in human breast milk and wildlife (Renner 2000). PBDEs are carcinogens that have been used as fire retardants in some household furniture. PBDEs are a group of hazardous chemicals like PCBs that are part of the substantial arena of unregulated hazardous chemicals that are being found as widespread pollutants. There can be little doubt that LDEQ’s expanded definition of C&D wastes, which includes furniture and other household materials that would be present in demolition wastes, will include PBDEs.

The situation with respect to finding PBDEs as widespread environmental pollutants is part of the growing recognition that the current regulatory approach for potentially hazardous chemicals considers only a few of the many thousands of chemicals that can be present in wastes which are a threat to public health, groundwater resources and the environment. In the affidavit submitted to LDEQ on the inappropriateness of constructing the Type III C&D waste landfill on top of the Old Gentilly landfill, I provided a discussion and references to the US EPA’s recent discussion of the unregulated chemicals that can be present in wastes that are a threat to public health and the environment. Daughton (2002, 2004) of the US EPA has indicated that there are over 22 million organic and inorganic substances, with nearly 6 million commercially available. The current water quality regulatory approach addresses less than 200 of these chemicals. PBDEs are just one example of these types of chemicals. It is because of this situation that regulatory agencies need to take a much more protective approach toward the landfilling of wastes than has generally been followed in the past. This is especially true for C&D wastes, since regulatory agencies, like LDEQ, assume, without proper testing and evaluation, that C&D wastes are “inert” and do not release hazardous and deleterious chemicals in leachate formed from water coming into contact with the wastes.

In addition, recently it has become more widely recognized that construction and demolition wastes can contain appreciable concentrations of PCBs. For many years PCBs were used in sealants in concrete joints and wooden structures. This means that construction and demolition wastes can contain PCBs. This issue has been recognized in Europe, Australia and other countries. There are a number of papers and reports on this issue from other countries, which provide additional information on the presence of PCBs in various types of structures. Of particular concern are the publications by Åstebro et al. (2000), BUWAL (date unknown) and CFMEU (date unknown). A comprehensive review of what was known in 2004 about PCBs in structures as a diffuse source of PCBs for the environment has been developed by Kohler et al. (2005).

An issue of increasing concern about waste wood is the potential for treated wood to leach arsenic, copper and chromium. Townsend and his associates at the University of Florida have conducted a number of studies on the leaching of these chemicals from treated wood (Townsend et al. 1998, Khan et al. 2004). They have found that the chemicals are somewhat leachable over a long period of time and represent a threat to groundwater quality.

It should be noted that LDEQ's definition of C&D wastes has been expanded to accommodate New Orleans Katrina waste components that are not normally allowed in C&D landfills; therefore, the leachate generated from the Katrina wastes will likely have an even greater potential to cause groundwater pollution than conventional C&D wastes. The management of New Orleans Katrina C&D wastes should be conducted in a landfill that can be reliably monitored and maintained to protect public health and the environment.

Section 11 of the NISTAC report contains a number of recommendations for additional studies to better define the impacts of the existing Old Gentilly landfill and the potential impacts of the continued development/expansion of the new Class III C&D waste landfill on top of the old landfill. I have reviewed these recommendations and support all of them. In addition, two issues not specifically addressed by NISTAC that need to be addressed include:

- The potential for bioaccumulation of hazardous chemicals in edible organisms (such as fish and shellfish) derived from the existing landfill through surface runoff and groundwater pollution that reaches surface waters should be studied. These studies of bioaccumulation of hazardous chemicals should be part of a standard monitoring program to establish current background and to potentially detect releases of bioaccumulatable hazardous chemicals from the Old Gentilly landfill and the new C&D landfill that are a threat to human health and wildlife.
- Leaching tests should be performed on representative samples of C&D Katrina wastes to determine the hazardous and otherwise deleterious chemicals that could be released in leachate that is generated in the C&D landfill. Such testing could provide guidance on the kind of monitoring program that needs to be conducted to detect the impacts of the new C&D landfill which has already been developed on top of the old landfill.

Lee and Jones-Lee (2006) have provided guidance on the type of evaluation that should be made of C&D wastes to determine if they have a potential to cause groundwater pollution, as well as other environmental impacts.

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