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Jeremy K. O'Brien, P.E.
Director of Applied Research
Solid Waste Association of North America
P.O. Box 7219
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RE: Hurricane Katrina Disaster Debris Management: Lessons Learned from State and Local Governments, Briefing Report

Dear Mr. O'Brien:

As fellow solid waste professionals and colleagues, members of the North American Hazardous Materials Management Association (NAHMMA) are concerned about the Solid Waste Association of North America's (SWANA) recent recommendations to the State of Louisiana Department of Environmental Quality as contained in the September 21, 2005 Briefing Report, Hurricane Katrina Disaster Debris Management: Lessons Learned from State and Local Governments. Many sections of this report fail to consider the safety of local citizens, communities, clean-up workers, and the environment.

Below are suggested changes to these sections. These recommendations are from NAHMMA members with disaster recovery experience, some of whom are currently responding to the aftermath of Hurricanes Katrina and Rita. NAHMMA strongly encourages SWANA to make the suggested revisions immediately to ensure the safety of all those that have been affected by the hurricanes and those that are involved in clean-up operations.

Section 3.1 Lessons Learned, General
"Do not waste resources on retrieving small quantities of household hazardous waste (HHW)… and allow small quantities of HHW commingled with other debris to move to regular Municipal Solid Waste (MSW) landfills with composite liners."

The quantities of HHW generated as a result of Hurricane Katrina are not small. EPA's Household Hazardous Waste Management: A Manual for One-Day Community Collection Programs estimates a household generates approximately 20 pounds of HHW each year. On September 29th, 2005 Mike McDaniel, secretary of the Louisiana Department of Environmental Quality, estimated that 150,000 homes will need to be leveled. So, approximately 3 million pounds of uncontained, mixed HHW will need to be removed. This estimate may be low since it does not account for the thousands upon thousands of homes that were partially destroyed or for the fact that most households accumulate HHW year after year in their garages, sheds, and under sinks.

Commingling HHW and other specific wastes as recommended in Sections 3.1 and 3.2 presents significant risks to human health and the environment. Even though HHW and many specific wastes are exempt from the

Resource, Conservation, and Recovery Act (RCRA) that regulates hazardous waste, this waste shares the same toxic, ignitable, corrosive, and reactive characteristics as RCRA regulated material, a.k.a. hazardous waste. Allowing these materials to be purposefully commingled in the MSW stream places residents, solid waste workers, and others involved with clean-up activities at risk of injuries and toxic exposures.

Section 3.1 of the Briefing Report states: "the main priority is to focus on those recovery and collection activities that will be the quickest to implement, with the *least amount of human exposure* to any *hazardous or toxic materials* present in the waste stream." Given that priority, NAHMMA recommends SWANA contact managers in other areas of the country who managed the HHW collection programs that were effectively implemented as part of other disaster relief programs [Sonoma County, CA (1995), Portland, OR (1996), State of Minnesota (1997), and State of Florida (2004)]. Including comments from those experienced contacts would further assist responders to plan safe and effective clean-up activities that include special waste management.

Section 3.2 Lessons Learned, Management of Specific Wastes

NAHMMA is also concerned with the recommendations for the Management of Specific Wastes as outlined in Section 3.2 of the report. SWANA cites Reference 5: Monterey Regional Waste Management District's *Katrina Response to Waste Processing Priorities Draft Memorandum* for each of the Specific Waste Streams. The information contained within this document contradicts the recommendations presented in Reference 4: Annex VI – Disaster Debris Best Management Practices: Management Techniques for Debris Types. Annex VI provides Best Management Practices for the items mentioned in Sections 3.2.2 and 3.2.3 of the Briefing Report but those recommendations are ignored in the report Sections 3.2.2 and 3.2.3. We recommend that the report reference Annex VI throughout Section 3.2 to ensure that the threat to human health and safety is minimized.

3.2.1 School Laboratory Materials
"School laboratory materials in small quantities (less than 220 pounds per school) can be commingled with other debris and handled by conventional waste collection methods and disposed of in municipal solid waste (MSW) landfills."

Chemicals found in school laboratories throughout the country pose unique and significant concern due to their acute toxicity, radioactivity, and potentially explosive reactivity. In addition to the extreme risk they pose in standard storage conditions, added risks are created by unstable environmental conditions like flooding and destruction due to hurricanes.

School chemicals should be evaluated and prepared for disposal by trained personnel with chemical identification experience. Some chemicals are highly toxic and hazardous and thus should not be managed using bulk collection and burial in a MSW landfill. This practice is likely to result in fires, explosions, generation of toxic gases, and long-term high levels of toxics contamination. As a result, unacceptable risks to health and safety will be faced by all clean-up workers involved in the process as well as residents and solid waste employees. NAHMMA recommends that school wastes be evaluated and managed by experienced, trained hazardous waste management professionals.

3.2.2 Household Hazardous Materials
"Household hazardous materials can be commingled with other debris and handled by conventional waste collection methods and disposed of in municipal solid waste (MSW) landfills."

Similar to school laboratory materials described above, many household chemicals are flammable, corrosive, and poisonous and can injure workers and residents who attempt to collect them without proper training or equipment. Household paints, pesticides, gasoline and solvents can readily leach into groundwater from landfills, causing contamination of aquifers and drinking water sources which are expensive and sometimes impossible to remediate. Every home in the affected regions will contain some amount of HHW. Thus it is

important to have trained workers available to help identify and collect these chemicals and to provide guidance to residents returning to their damaged homes.

3.2.3 Automobile-Related Materials (Tires, Lubricating Fluids, Mercury Switches, Lead-Acid Batteries, Contaminated Gasoline/Diesel Fuel)
"Any household or consumer auto type wastes can be handled safely enough through regular conventional waste collection."

Automotive related materials including lubricating fluids, mercury switches, lead-acid batteries, and gasoline have the same hazardous characteristics as RCRA regulated wastes, present the same health and safety risks to clean-up workers and should be managed appropriately. Recommended management techniques for automobile related materials include:

- Identification of hazardous and recyclable materials,
- Removal and segregation of hazardous materials and universal waste, and
- Hazardous waste disposal as necessary or recycling for appropriate waste items.

Mercury switches are of concern in this category. When improperly managed, elemental mercury contained in automobile lighting, anti-lock brakes, and ride control systems are released into the environment. It is then converted into methylmercury and bioaccumulates up the food chain. Mercury is highly toxic at very low levels and can permanently damage the brain, kidneys and a developing fetus. It is important that the mercury-containing items be properly managed to further protect human health and the environment.

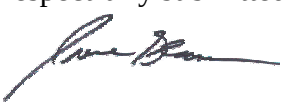
3.2.6 Electronic Products
"Limited resources available to Katrina Recovery should target other materials that are more harmful to the environment, or are easily recyclable. Most e-waste can be easily handled within conventional waste collection and disposal methods."

Electronic Products such as televisions and computer monitors are easily recyclable and can be harmful to the environmental when improperly managed. These products contain heavy metals including lead and cadmium. The potential for long-term human health and environmental impacts from leaching of heavy metals from e-scrap into ground water has been demonstrated. Hard drives should be destroyed during the disposal or recycling process to protect the privacy of the owners and prevent identify theft.

In summary, sections of SWANA's Briefing Report to the State of Louisiana Department of Environmental Quality falls short of addressing the health and safety of local citizens, communities, clean-up workers, and the environment in the wake of Hurricanes Katrina and Rita. NAHMMA recommends immediate corrections which advocate safe handling and proper disposal of hazardous materials. While we understand the importance of an expedited response to begin the process of rebuilding the Gulf region, it must not be at the expense of public health and local environment.

NAHMMA has collaborated with SWANA on HHW and special waste issues in the past, such as the pesticide consumer labeling initiative, and would be happy to do so again in the future. If you or SWANA has questions or comments, please contact me or NAHMMA.

Respectfully submitted on behalf of the Board of Directors,



Irene Gleason, President
North American Hazardous Materials Management Association