

**Statement of**

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**Before the**

**Committee on Oversight and Government Reform**

**U.S. House of Representatives**

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Good morning, Chairman Waxman, Representative Davis, and members of the Committee. My name is R. David Paulison, and I am the Administrator of the Federal Emergency Management Agency (FEMA), within the Department of Homeland Security (DHS). It is my pleasure to be here with you today to assure this committee that FEMA is taking responsible steps to address the concerns regarding the presence of formaldehyde in temporary housing units provided to disaster assistance applicants.

Historically FEMA has used manufactured housing (mobile homes) and travel trailers as a means of providing temporary housing to individuals who are displaced from their primary residences following a Presidentially declared disaster, but only when other forms of housing are not readily available. In the majority of disasters, housing needs are addressed through existing resources and FEMA's use of mobile homes or travel trailers is typically limited. This changed dramatically following hurricanes Katrina and Rita, as housing resources along the Gulf Coast were decimated. There were few alternatives to FEMA mobile homes and travel trailers. To address the need, FEMA provided over 120,000 mobile homes and travel trailers to individuals and families throughout the Gulf.

This was the largest emergency housing mission in our nation's history. Given decades of successful history of using mobile homes and smaller travel trailers to provide temporary housing, we had no reason to anticipate problems with the habitability of travel trailer units. Nevertheless, FEMA responded to the first reported concerns of formaldehyde fumes by a Gulf Coast travel trailer occupant in March 2006, and replaced the unit on March 19, 2006. FEMA continued to monitor the number of formaldehyde reports, and once they began to increase, the agency took this as an indication that this might be more than an isolated concern. FEMA began consulting with the Environmental Protection Agency (EPA), the Department of Health and Human Services (HHS) (including its Agency for Toxic Substances and Disease Registry (ATSDR)), and the mobile home industry to gather information about the presence and effects of formaldehyde, in May 2006.

FEMA implemented a system to address the complaints, case-by-case, as they were reported. FEMA utilized media outlets to inform the residents in Mississippi and Louisiana that they could contact the maintenance call center to address questions regarding formaldehyde in their travel trailers. These calls received prompt follow-up actions, which included sending a housing representative to visit with the occupants of the units to discuss ventilation, and other ways that formaldehyde levels could potentially be decreased. For households that reported continuing problems with formaldehyde, FEMA responded by either replacing the unit with an older unit that had reduced levels of formaldehyde or by helping residents locate another form of housing. Of the 120,000 mobile homes and travel trailers that FEMA provided to individuals and families throughout the Gulf, only a small number of travel trailer formaldehyde complaints have come in to FEMA. We acknowledge that this number is difficult to determine because FEMA does not have an Agency-wide database for collecting and sorting maintenance complaints including formaldehyde, which is exactly why we have continued to move towards comprehensive assessment and mitigation strategies. Of note, however, despite the press coverage that has been associated with this issue, including our widely known willingness to replace travel trailers, out of more than 66,800 travel trailers and mobile homes currently used as temporary housing in the Gulf, only 58 travel trailer units have been replaced because of formaldehyde concerns - 18 in Louisiana, 30 in Mississippi, 8 in Texas and 2 in Alabama. Five additional formaldehyde complaints in Mississippi and Texas have resulted in occupants being moved to rental housing resources.

As concerns continued to be received into the summer, FEMA also began widespread distribution of information to travel trailer occupants across the Gulf Coast identifying potential sources of formaldehyde and explaining how those persons sensitive to formaldehyde could take specific actions to remediate formaldehyde levels. Flyers capturing this information were hand delivered to all travel trailer occupants beginning in July of 2006.

The flyers contained relevant information about formaldehyde, which is one of the 25 most abundantly produced chemicals in the world. Formaldehyde is found in many

household products including new permanent press fabrics, new carpets, latex paint, fingernail polish, antiseptics, medicines, cosmetics, dish-washing liquids, fabric softeners, shoe-care agents, carpet cleaners, glues, adhesives, lacquers, and plastics. It is also produced by cigarettes and other tobacco products and gas cookers. Factors that affect the concentration of formaldehyde in indoor air include the type and quality of source materials, the age of the source materials, ventilation, temperature and humidity. Therefore the information provided to residents on remediation efforts urged occupants to increase ventilation, keep indoor temperatures cool, keep the humidity low, and not to smoke inside the unit.

Discussions with EPA, CDC, and HHS continued throughout the summer to gain a better understanding of the scope and magnitude of potential problems related to the presence of formaldehyde in temporary housing units, and to begin planning for testing. In September 2006, the results of these discussions were manifested as FEMA modified an Interagency Agreement with the EPA to begin testing for formaldehyde in travel trailers. The study involved collecting air samples from new, unused travel trailers during the months of September and October at a staging area in Baton Rouge, LA. Only travel trailers that had never been occupied were tested in order to eliminate any effects from human activities that might cause formaldehyde levels to rise. Samples were collected from two different groups of travel trailers, each using a different method of ventilation. One group was ventilated by opening windows and vents, while for the second group, ventilation was provided using the air conditioning system with open static vents in the bathroom. Samples were taken at different times of the day. Ambient outdoor samples were taken concurrently with the collection of the samples in the travel trailers.

In November 2006, EPA provided the data gathered during the sampling phase to FEMA for further analysis. FEMA forwarded the data to the Department of Health and Human Services Agency for Toxic Substances and Disease Registry (ATSDR) in Atlanta, GA which is associated with the Centers for Disease Control (CDC) for evaluation. This analysis demonstrated that travel trailers in storage conditions with adequate ventilation

could reduce levels below the level of concern for sensitive individuals. These studies were repeated in March and showed the same results.

As noted previously formaldehyde is a substance that is ubiquitous in today's environment, and is even, in small levels, a normal by-product of biological processes in the human body. At higher levels, especially indoors, formaldehyde can be irritating to the respiratory system, and it is reasonably anticipated to be a human carcinogen. The subject is complicated by the fact that, despite over 30 years of research, no Federal agency has ever been able to determine a safe or unsafe level in residential indoor air. Even in "occupational" settings, estimates of "safe" levels are widely divergent. This remains a complex issue.

Over last winter and spring, physicians in the Gulf Coast region noted an association between families living in travel trailers and frequent and recurrent upper respiratory infections. This finding was remarkable because physicians noticed these were patients that they followed both before and after Katrina, and they did not see similar patterns in the same families before Katrina. In fact, they observed that families having difficulties with respiratory issues while living in travel trailers, cleared of their symptoms once they moved out.

Based on these observations, a private organization undertook its own testing (no documentation of the exact procedures used is available).

In February 2007, the same month as the results of the above private study were published in a magazine article, the results of the testing performed by the EPA, with subsequent analysis by ATSDR, were released. The findings confirmed that adequate ventilation could reduce the formaldehyde to levels below the level of concern for sensitive individuals based on the best available published studies and standards (again, these were not studies or standards regarding residential air quality as that data does not exist). Information and guidance based on the results was provided to the residents of the travel trailers.

However, with the continued anecdotal complaints and a recognition regarding the practicality of the ventilation advice, especially in the Gulf Coast region in the summer, FEMA asked the DHS Office of Health Affairs (OHA) and the Chief Medical Officer to assist in working with CDC to determine the best scientifically valid approach to address this issue. More specifically, FEMA sought to get to the root of the problem as rapidly as possible, with the primary goal being the health and safety of those who are still in travel trailers as temporary housing.

As part of this additional evaluation, an OHA Associate Chief Medical Officer spoke to the physician who had been most quoted in the press. This physician noted a pattern of respiratory illness which could be consistent with formaldehyde exposure, but, importantly and correctly, he also noted that there was no clinical basis for definitively associating increased upper respiratory symptoms specifically with elevated formaldehyde levels. It is very possible that the observed illness pattern is due to multiple factors including other exposures, other environmental conditions in the area, or just simply the very close living conditions in a travel trailer.

In specific consideration of the formaldehyde component of the problem, OHA requested a thorough evaluation of the formaldehyde literature by the DHS Bio-defense Knowledge Center at Lawrence Livermore Laboratories. The review confirmed that formaldehyde has clearly been shown to be a respiratory irritant and that there are probable, but unproven, long-term health effects with high-level prolonged exposures. It also confirmed that no study data are readily available on residential exposures.

In June 2007, DHS officials from FEMA and OHA met with CDC in Atlanta with representatives of the National Center for Environmental Health, ATSDR, and the National Institute for Occupational Safety and Health (NIOSH). Subsequent conferences have included representatives from the National Institute for Standards and Technology (NIST). The goals of these discussions have been to develop a strategy to rapidly

determine actual indoor air quality conditions in occupied units, to determine a scientifically valid target for air quality improvement, and to assess engineering solutions that can achieve those levels. Based on these discussions and in collaboration with the DHS Chief Medical Officer, I have formally requested the services of the CDC to address specific issues that have arisen from these discussions, including:

- Determining the levels of certain air contaminants in occupied housing units, not limited to formaldehyde, but including volatile organic compounds, molds, and airborne bacteria;
- Assessing the formaldehyde standard publishing by the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) for validity as an interim air quality guideline or recommend an alternate interim guidance;
- Identifying practical mechanical or engineering solutions to reach target air quality for health/safety in the travel trailers; and
- Determining if there is a relationship between indoor air quality in the housing units and adverse health affects in the children who live in the units.

A copy of my letter to the CDC requesting this assistance is attached for the record.

FEMA fully agrees with Members of Congress and the public that there should be a thorough investigation of the relationship between indoor air quality in the travel trailers and any corresponding health effects. CDC initially estimated that an investigation of that type would take at least a year. Neither DHS nor the residents can wait that long for those results before taking action.

Consequently, the investigation will take a two-phased approach, with an initial rapid study as outlined above, and a more in-depth study to give us a better understanding of the complete issue. This work will be initiated using multiple Federal partners working together to provide decision makers and the trailer residents with a plan, as soon as possible.