AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

MANUFACTURERS OF FEMA TRAILERS AND ELEVATED FORMALDEHYDE LEVELS

HEARING

BEFORE THE

COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM

HOUSE OF REPRESENTATIVES

ONE HUNDRED TENTH CONGRESS

SECOND SESSION

JULY 9, 2008

Serial No. 110–132

Printed for the use of the Committee on Oversight and Government Reform

Available via the World Wide Web: http://www.gpoaccess.gov/congress/index.html
http://www.house.gov/reform

U.S. GOVERNMENT PRINTING OFFICE

47–995 PDF WASHINGTON : 2009

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2104 Mail: Stop IDCC, Washington, DC 20402–0001

COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM

HENRY A. WAXMAN, California, *Chairman*

EDOLPHUS TOWNS, New York
PAUL E. KANJORSKI, Pennsylvania
CAROLYN B. MALONEY, New York
ELIJAH E. CUMMINGS, Maryland
DENNIS J. KUCINICH, Ohio
DANNY K. DAVIS, Illinois
JOHN F. TIERNEY, Massachusetts
WM. LACY CLAY, Missouri
DIANE E. WATSON, California
STEPHEN F. LYNCH, Massachusetts
BRIAN HIGGINS, New York
JOHN A. YARMUTH, Kentucky
BRUCE L. BRALEY, Iowa
ELEANOR HOLMES NORTON, District of Columbia
BETTY McCOLLUM, Minnesota
JIM COOPER, Tennessee
CHRIS VAN HOLLEN, Maryland
PAUL W. HODES, New Hampshire
CHRISTOPHER S. MURPHY, Connecticut
JOHN P. SARBANES, Maryland
PETER WELCH, Vermont
JACKIE SPEIER, California

TOM DAVIS, Virginia
DAN BURTON, Indiana
CHRISTOPHER SHAYS, Connecticut
JOHN M. McHUGH, New York
JOHN L. MICA, Florida
MARK E. SOUDER, Indiana
TODD RUSSELL PLATTS, Pennsylvania
CHRIS CANNON, Utah
JOHN J. DUNCAN, Jr., Tennessee
MICHAEL R. TURNER, Ohio
DARRELL E. ISSA, California
KENNY MARCHANT, Texas
LYNN A. WESTMORELAND, Georgia
PATRICK T. McHENRY, North Carolina
VIRGINIA FOXX, North Carolina
BRIAN P. BILBRAY, California
BILL SALI, Idaho
JIM JORDAN, Ohio

PHIL BARNETT, *Staff Director*
EARLEY GREEN, *Chief Clerk*
LAWRENCE HALLORAN, *Minority Staff Director*

CONTENTS

	Page
Hearing held on July 9, 2008	1
Statement of:	
McGeehin, Michael, Director, Environment Hazards and Health Effects, National Center for Environmental Health, Centers for Disease Control and Prevention	66
Shea, Jim, chairman, Gulf Stream Coach, Inc.; Steve Bennett, president, Pilgrim International, Inc.; Ronald J. Fenech, president, Keystone RV, Inc.; and Peter Liegl, president and CEO, Forest River, Inc.	117
Fenech, Ronald J.	134
Liegl, Peter	141
Shea, Jim	117
Letters, statements, etc., submitted for the record by:	
Burton, Hon. Dan, a Representative in Congress from the State of Indiana, prepared statement of	94
Davis, Hon. Tom, a Representative in Congress from the State of Virginia, prepared statement of	17
Fenech, Ronald J., president, Keystone RV, Inc., prepared statement of	136
Liegl, Peter, president and CEO, Forest River, Inc., prepared statement of	143
McGeehin, Michael, Director, Environment Hazards and Health Effects, National Center for Environmental Health, Centers for Disease Control and Prevention, prepared statement of	69
Sali, Hon. Bill, a Representative in Congress from the State of Idaho, prepared statement of	181
Shea, Jim, chairman, Gulf Stream Coach, Inc., prepared statement of	119
Souder, Hon. Mark E., a Representative in Congress from the State of Indiana, information concerning formaldehyde	82
Watson, Hon. Diane E., a Representative in Congress from the State of California, prepared statement of	177
Waxman, Chairman Henry A., a Representative in Congress from the State of California:	
Staff reports	20
Prepared statement of	5

MANUFACTURERS OF FEMA TRAILERS AND ELEVATED FORMALDEHYDE LEVELS

WEDNESDAY, JULY 9, 2008

HOUSE OF REPRESENTATIVES,
COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM,
Washington, DC.

The committee met, pursuant to notice, at 10 a.m., in room 2154, Rayburn House Office Building, Hon. Henry A. Waxman (chairman of the committee) presiding.

Present: Representatives Waxman, Cummings, Kucinich, Davis of Illinois, Tierney, Clay, Watson, Murphy, Sarbanes, Welch, Davis of Virginia, Burton, Shays, Souder, Issa, Bilbray, Sali, and Jordan.

Also present: Representatives Donnelly and Lampson.

Staff present: Phil Barnett, staff director and chief counsel; Kristin Amerling, general counsel; Karen Lightfoot, communications director and senior policy advisor; Greg Dotson, chief environment counsel; Erik Jones, counsel; Earley Green, chief clerk; Jen Berenholz, deputy clerk; Caren Auchman and Ella Hoffman, press assistants; Zhongrui "JR" Deng, chief information officer; Leneal Scott, information systems manager; Rob Cobbs and Miriam Edelman, special assistants; Mitch Smiley, staff assistant; Lawrence Halloran, minority staff director; Jennifer Safavian, minority chief counsel for oversight and investigations; Keith Ausbrook, minority general counsel; Ellen Brown, minority senior policy counsel; Larry Brady and John Cuaderes, minority senior investigator and policy advisors; Benjamin Chance, Adam Fromm, and Todd Greenwood, minority professional staff members; Patrick Lyden, minority parliamentarian and member services coordinator; Brian McNicoll, minority communications director; and Molly Boyl.

Chairman WAXMAN. The committee will please come to order.

Today the committee is holding its second hearing on formaldehyde in FEMA trailers. A year ago the committee examined how FEMA responded to reports that the families living in Government trailers were being exposed to hazardous levels of formaldehyde. Our hearing revealed that the FEMA staff out in the field said that they needed to test these trailers so the dangerous levels of formaldehyde would not adversely affect the families living in these trailers, but FEMA, itself, in Washington refused to do that. One FEMA lawyer directed: "Do not initiate any testing. Once you get results and should they indicate some problem, the clock is running on our duty to respond."

Well, what we learned at that hearing outraged Americans all across the country. FEMA had a duty to protect families living in

its trailers and it failed them. I expect today's hearing will also generate a sense of outrage.

The largest supplier of FEMA trailers by far was a manufacturer named Gulf Stream. In the weeks after Hurricane Katrina struck, Gulf Stream received contracts from FEMA worth more than $500 million to supply over 50,000 trailers for displaced residents of the Gulf Coast.

FEMA failed by ignoring the dangers of formaldehyde and resisted testing. Gulf Stream's problem is different. The company did test trailers after hearing the first reports of high formaldehyde levels. It found pervasive formaldehyde contamination in its trailers and it didn't tell anyone.

The committee received thousands of pages of internal documents from Gulf Stream. The documents show that Gulf Stream regarded the high levels of formaldehyde in its trailers as a public relations and legal problem, not a public health threat.

There is a confusing array of formaldehyde standards used by Federal agencies. Here are some of the key numbers:

Ten to thirty parts per billion is the level of formaldehyde found in most homes. Exposure at this level does not cause acute health effects like burning eyes, shortness of breath, or nausea.

A hundred parts per billion is the level at which acute health effects begin to appear in healthy adults. The Centers for Disease Control, the Environmental Protection Agency, the Consumer Products Safety Commission, the National Institute of Occupational Safety and Health, and the World Health Organization all recognize 100 parts per billion as a level that can cause acute adverse health effects. Of course, if it is a vulnerable individual like a child or an elderly person, or somebody who is chronically ill, they can experience effects even below this level.

Five hundred parts per billion is the level at which OSHA requires medical monitoring of employees. This is an old standard adopted during the first Bush administration.

Seven hundred fifty parts per billion is the maximum workplace exposure level allowed by OSHA. It is also an old standard.

Nine hundred parts per billion is an EPA standard for hazardous response teams of industrial workers. EPA says that no one should be exposed to more than 900 parts per billion for more than 8 hours in a lifetime.

And here's what Gulf Stream found. Over 2 years ago, it tested 11 occupied trailers. Every single trailer had levels at or above 100 parts per billion, the level at which acute health effects begin to occur. Four of the trailers had levels above 500 parts per billion, the level at which OSHA requires medical monitoring. Gulf Stream also tested nearly 40 unoccupied trailers. These were trailers that were sitting in FEMA lots waiting to be given to displaced families. Over half of these trailers had formaldehyde levels above 900 parts per billion, the level that EPA says no one should ever be exposed to more than once in a lifetime. Several had levels over 2,000 parts per billion. One had levels over 4,000 parts per billion.

Gulf Stream never told any family living in its trailers about these test results. The company did spend a month carefully crafting a letter to FEMA about the test results. The letter told FEMA there was no problem in Gulf Stream trailers. It said: "Our

informal testing has indicated that formaldehyde levels of indoor ambient air of occupied trailers fall below the OSHA standard of 750 parts per billion."

Gulf Stream did not tell FEMA that all 11 occupied trailers had levels above 100 parts per billion. It did not tell FEMA that 4 of the 11 occupied trailers had levels above 500 parts per billion, and it did not tell FEMA that over half of the unoccupied trailers had levels far in excess of 750 parts per billion.

Gulf Stream did say that it would share its testing results with FEMA, but, of course, FEMA didn't want to know and apparently never asked for those results.

The press asked Gulf Stream about its formaldehyde levels. Gulf Stream retained a Washington public relations firm, Porter Novelli, and spent days crafting a statement. The statement read: "We are not aware of any complaints of illness from our many customers of travel trailers over the years, including travel trailers provided under our contracts with FEMA."

Gulf Stream did not tell the media that in March 2006, a month before Gulf Stream released its statement, an occupant of a Gulf Stream trailer in Louisiana told the company, "There is an odor in my trailer in Louisiana that will not go away. It burns my eyes. I am getting headaches every day. I have tried many things, but nothing seems to work. Please, please, please help me."

The FEMA contract was lucrative for Gulf Stream. In fact, the company's top executives saw their compensation double to over a million per year in 2005 and 2006. But revenue growth does not justify the conduct we have found. Gulf Stream had results that showed its trailers were a public health threat and the company never told the families living in its trailers.

The company also examined the conduct of three other trailer manufacturers. One of the companies, Pilgrim, apparently took the FEMA approach. Despite widely publicized reports of dangerous formaldehyde levels in FEMA trailers, Pilgrim never conducted any testing at all. The other two companies, Forest River and Keystone, did not test any trailer purchased by FEMA, but they did do some limited testing of other trailers and found high levels. In one case, a contractor hired by Forest River reported finding formaldehyde levels of over 1,500 parts per billion in a trailer. The contractor told the company it should post signs on the outside of the unit stating: "Hazardous, do not enter." And, like Gulf Stream, these manufactures did not tell the public or FEMA about their test results.

My staff has prepared an analysis of the evidence before the committee, and at the appropriate time I will ask that the analysis and the documents it cites be made part of the hearing record.

What this hearing will show is that no one was looking out for the interests of the displaced families living in FEMA trailers. FEMA failed to do its job, and the trailer manufacturers took advantage of the situation.

Our committee has held many hearings on waste, fraud, and abuse. In one sense today's hearing can be looked at as another example of Government procurement gone astray. The taxpayers paid $2 billion for trailers that now have to be scrapped for junk. But in this case, the health of thousands of vulnerable families was jeopardized.

During today's hearing the trailer manufacturers will be asked hard questions, and I think they understand this. But I also want them to know that I appreciate their cooperation with the committee and their willingness to appear voluntarily.

[The prepared statement of Chairman Henry A. Waxman follows:]

Opening Statement of Rep. Henry A. Waxman
Chairman, Committee on Oversight and Government Reform
Hearing on Manufacturers of FEMA Trailers and Elevated Formaldehyde Levels
July 9, 2008

Today the Committee is holding its second hearing on formaldehyde in FEMA trailers.

A year ago, the Committee examined how FEMA responded to reports that the families living in government trailers were being exposed to hazardous levels of formaldehyde.

Our hearing revealed that the FEMA field staff had urgently asked the agency to test its trailers so that dangerous trailers could be identified and families protected. But FEMA refused to test. One FEMA lawyer directed: "Do not initiate any testing. … Once you get results and should they indicate some problem, the clock is running on our duty to respond."

What we learned outraged Americans across the country. FEMA had a duty to protect the families living it its trailers, and it failed them.

I expect today's hearing will also generate a sense of outrage.

The largest supplier of FEMA trailers by far was a manufacturer named Gulf Stream. In the weeks after Hurricane Katrina struck, Gulf Stream received contracts from FEMA worth more than $500 million to supply over 50,000 trailers for displaced residents of the Gulf Coast.

FEMA failed by ignoring the dangers of formaldehyde and resisted testing. Gulf Stream's problem is different. The company did test trailers after hearing the first reports of high formaldehyde levels. It found pervasive formaldehyde contamination in its trailers. And it did not tell anyone.

The Committee received thousands of pages of internal documents from Gulf Stream. The documents show that Gulf Stream regarded the high levels of formaldehyde in its trailers as a public relations and legal problem, not a public health threat.

There is a confusing array of formaldehyde standards used by federal agencies. Here are some of the key numbers:

- 10 to 30 parts per billion is the level of formaldehyde found in most homes. Exposure at this level does not cause acute health effects like burning in the eyes, shortness of breath, or nausea.

- 100 parts per billion is the level at which acute health effects begin to appear in healthy adults. CDC, EPA, the Consumer Products Safety Commission, NIOSH, and the World Health Organization all recognize 100 parts per billion as a level that can cause acute adverse health effects. Vulnerable individuals like children, the elderly, and those who are chronically ill can experience effects even below this level.

- 500 parts per billion is the level at which OSHA requires medical monitoring of employees. This is an old standard adopted during the first Bush Administration.

- 750 parts per billion is the maximum workplace exposure level allowed by OSHA. It is also an old standard.

- 900 parts per billion is an EPA standard for hazardous response teams or industrial workers. EPA says that no one should be exposed to more than 900 parts per billion for more than eight hours in a lifetime.

And here's what Gulf Stream found. Over two years ago, it tested 11 occupied trailers. Every single trailer had levels at or above 100 parts per billion, the level at which acute health effects begin to occur. Four of the trailers had levels above 500 parts per billion, the level at which OSHA requires medical monitoring.

Gulf Stream also tested nearly 40 unoccupied trailers. These were trailers that were sitting in FEMA lots waiting to be given to displaced families. Over half of these trailers had formaldehyde levels above 900 parts per billion, the level that EPA says no one should ever be exposed to more than once in a lifetime. Several had levels over 2,000 parts per billion. One had levels over 4,000 parts per billion.

Gulf Stream never told any family living in its trailers about these test results.

The company did spend a month carefully crafting a letter to FEMA about the test results. The letter told FEMA there was no problem in Gulf Stream trailers. It said: "Our informal testing has indicated that formaldehyde levels of indoor ambient air of occupied trailers fall below … the OSHA standard" of 750 parts per billion.

Gulf Stream did not tell FEMA that all 11 occupied trailers had levels above 100 parts per billion. It did not tell FEMA that four of the 11 occupied trailers had levels above 500 parts per billion. And it did not tell FEMA that over half of the unoccupied trailers had levels far in excess of 750 parts per billion.

Gulf Stream did say that it would share its testing results with FEMA. But of course, FEMA didn't want to know and apparently never asked for the results.

The press asked Gulf Stream about its formaldehyde levels. Gulf Stream retained an expensive Washington public relations firm, Porter Novelli, and spent days crafting a statement. The statement read: "We are not aware of any complaints of illness from our many customers of … travel trailers over the years, including travel trailers provided under our contracts with FEMA."

Gulf Stream did not tell the media that in March 2006 — a month before Gulf Stream released its statement — an occupant of a Gulf Stream trailer in Louisiana told the company: "There is an odor in my trailer that will not go away. It burns my eyes and I am getting headaches every day. I have tried many things, but nothing seems to work. PLEASE, PLEASE HELP ME!!"

The FEMA contract was lucrative for Gulf Stream. In fact, the company's top executives saw their compensation double to over $1 million per year in 2005 and 2006.

But revenue growth does not justify the conduct we have found. Gulf Stream had test results that showed its trailers were a public health threat and the company never told the families living in its trailers.

The Committee also examined the conduct of three other trailer manufacturers. One of these companies, Pilgrim, apparently took the FEMA approach. Despite widely publicized reports of dangerous formaldehyde levels in FEMA trailers, Pilgrim never conducted any testing at all.

The other two companies, Forest River and Keystone, did not test any trailers purchased by FEMA. But they did do some limited testing of other trailers and found high levels. In one case, a contractor hired by Forest River reported finding formaldehyde levels of over 1,500 parts per billion in a trailer. The contractor told the company it should "post signs" on the outside of the unit stating "hazardous — do not enter."

And like Gulf Stream, these manufacturers did not tell the public or FEMA about their test results.

My staff has prepared an analysis of the evidence before the Committee. At the appropriate time, I will ask that the analysis and the documents it cites be made part of the hearing record.

What this hearing will show is that no one was looking out for the interests of the displaced families living in the FEMA trailers. FEMA failed to do its job and trailer manufacturers took advantage of the situation.

Our Committee has held many hearings on waste, fraud, and abuse. In one sense, today's hearing can be looked at as another example of government procurement gone astray. The taxpayers paid $2 billion for trailers that that now have to be scrapped as junk. But in this case, the health of thousands of vulnerable families was jeopardized.

During today's hearing, the trailer manufacturers will be asked hard questions. I think they understand this. But I also want them to know that I appreciate their cooperation with the Committee and their willingness to appear voluntarily.

Chairman WAXMAN. I would like to ask unanimous consent that the staff report, "Trailer Manufacturers and Elevated Formaldehyde Levels,"——

Mr. DAVIS OF VIRGINIA. Mr. Chairman, we would also ask unanimous consent that the minority staff analysis be put in the record, as well.

Chairman WAXMAN. We have no objection to your unanimous consent request.

Mr. DAVIS OF VIRGINIA. We have none to yours.

Chairman WAXMAN. And let me further ours that we want the documents, as well, that the report refers to be made part of the record.

Mr. SOUDER. Mr. Chairman, I have a concern about the documents that were and would object to the documents all being inserted that were provided to the committee without having a further discussion about whether all those documents need to be released. Many of them contain private information.

Chairman WAXMAN. Well, we will withhold all the unanimous consent requests and then see if we can offer it at a later time.

Mr. Davis, I want to recognize you for an opening statement.

Mr. DAVIS OF VIRGINIA. Thank you, Mr. Chairman.

As the third anniversary of Hurricane Katrina's landfall approaches, we have the opportunity to focus oversight attachment non disaster preparedness and effective response. Katrina still has important lessons to teach about emergency shelter and longer-term housing for disaster victims.

The committee's 2-year investigation into formaldehyde in FEMA travel trailers could yield important information about the need for clearer purchase requirements, better product safety standards, effective trailer storage practices, and a more rapid coordinated response to public health issues. But by narrowly focusing today on four trailer manufacturers, the committee risks missing broader causes of variable potentially toxic air quality in emergency housing units. The problem was and remains confusion among Federal agencies, not some conspiracy by trailer makers.

As we learned from testimony and exhibits at our hearing on these issues a year ago, FEMA lawyers advised against a proactive response to questions about formaldehyde raised by the occupants and by the trailer vendors in 2006. To this day, far more confusion than clarity emerges from any discussion of relevant formaldehyde exposure standards. Published guidelines on exposure under various circumstances, durations, temperatures, and atmospheric conditions range from eight parts per billion to one thousand parts per billion, with nine standards in between. This chart here illustrates that.

For the record, Gulf Stream went to FEMA for guidance when they uncovered problems. They didn't cover it up from their customer. They went to the customer. It is FEMA—who is not here, unfortunately, and ought to be answerable for the results in this case—that didn't want to make an issue of this.

The closest thing to a standard for travel trailers is one set for larger manufactured housing units by the Department of Housing and Urban Development at 400 parts per billion. There isn't even agreement on the appropriately validated testing methodologies to

determine how to measure indoor formaldehyde levels that might be elevated above whatever standard is being used.

The Federal agency witnesses who might help explain this Formaldehyde Tower of Babel aren't here today. FEMA is focusing all its attention on Midwest flood relief. The Occupational Safety and Health Administration, the Environmental Protection Agency, the National Institute of Occupational Safety and Health, the Consumer Product Safety Commission, and HUD also have information relevant to our discussion this morning. But they were only invited to participate late last Thursday, as Federal offices were closing for the holiday weekend. They declined to participate without more time to prepare.

We should have actually taken this hearing and moved it so we could have had everyone involved here and had a discussion over what these standards should have been and what happened and hear how the Federal Government, who I think has the largest culpability in this, messed this up.

That is unfortunate, because those agencies could help us interpret results from multiple Government-sponsored tests of occupied and unoccupied FEMA trailers and component materials. The test data suggests some wood products obtained from new sources, including China, yielded higher than expected formaldehyde readings. Under pressure to meet emergency trailer production demand, some of that wood may have been put into trailers before the normal off-gassing could occur. Poor ventilation during storage and use, particularly in hot climates, then trapped and concentrated gases that might otherwise leach off harmlessly.

So what happens to a trailer after it is manufactured may have as much to do with its subsequent safety as the inclusion of unregulated wood products in the first place. Remember, formaldehyde is a widely used chemical in consumer products. It is also the natural byproduct of many natural processes, like combustion, and a constant element of basic metabolic functions. It is in our bloodstream. Each of us releases some formaldehyde in this room when we exhale.

Eliminating formaldehyde isn't the issue. The goal is to keep sustained formaldehyde exposure below the levels suspected to cause health effects. According to some groups that may be 100 parts per billion or less for most people.

So where do FEMA trailers score? According to data recently released by the Centers for Disease Control and Prevention, the average level of formaldehyde in occupied trailers fell between 72 and 91 parts per billion—72 and 91. Our staff did some random tests around the Capitol with a hand-held meter and we got a reading of 80 parts per billion right next to this committee anteroom. But some trailers tested much higher, some lower.

Since the CDC tests didn't account for any contribution from background levels like those we found here, it is even less clear how much formaldehyde came from the wood in the trailers. That leaves trailer occupants already victimized by one storm caught in a legal tempest of post-Katrina political scapegoating, bureaucratic finger-pointing, and litigation. Once again, the committee risked being used as a discovery proxy for plaintiffs suing companies called to testify before us, and that is wrong. Instead, we should

be asking FEMA why contract requirements for habitable mobile units weren't more specific, why inspection procedures weren't consistent, and why health concerns couldn't trigger standardized testing and, where necessary, prompt remediation.

We should be asking Federal science and health agencies how to establish and measure workable standards for formaldehyde exposure in realistic settings so that this sad event never occurs again.

We will have the opportunity today to ask representatives of the travel trailer industry whether they will be able or willing to ramp up production to meet emergency demand when FEMA calls again. I hope their answer doesn't mean we will have even fewer options to meet critical housing needs after the next inevitable disaster.

Thank you.

[The prepared statement of Hon. Tom Davis follows:]

HENRY A. WAXMAN, CALIFORNIA
CHAIRMAN

TOM DAVIS, VIRGINIA
RANKING MINORITY MEMBER

ONE HUNDRED TENTH CONGRESS

Congress of the United States
House of Representatives
COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM
2157 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515–6143

Majority (202) 225-5051
Minority (202) 225-5074

Statement of Rep. Tom Davis
Ranking Republican Member
Committee on Oversight and Government Reform
"*Manufacturers of FEMA Trailers and Elevated Formaldehyde Levels.*"
July 9, 2008

Mr. Chairman, as the third anniversary of Hurricane Katrina's landfall approaches, we have the opportunity to focus oversight attention on disaster preparedness and effective response. Katrina still has important lessons to teach about emergency shelter and longer term housing for disaster victims. The Committee's two-year investigation into formaldehyde in FEMA travel trailers could yield important information about the need for clearer purchase requirements, better product safety standards, effective trailer storage practices and a more rapid, coordinated response to public health issues.

But by narrowly focusing today on four trailer manufacturers, the Committee risks missing the broader causes of variable, potentially toxic, air quality in emergency housing units. The problem was, and remains, confusion among federal agencies, not some conspiracy by trailer makers. As we learned from testimony and exhibits at our hearing on these issues a year ago, FEMA lawyers advised against a pro-active response to questions about formaldehyde raised by occupants - *and by trailer vendors* - in 2006.

To this day, far more confusion than clarity emerges from any discussion of relevant formaldehyde exposure standards. Published guidelines on exposures under various circumstances, durations, temperatures and atmospheric conditions range from eight parts per billion to one thousand parts per billion, with nine "standards" in between. [Chart] The closest thing to a standard for travel trailers is one set for larger manufactured housing units by the Department of Housing and Urban Development at 400 parts per billion. There isn't even agreement on the appropriately validated testing methodologies to determine how to measure indoor formaldehyde levels that might be "elevated" above whatever standard is being used.

But the federal agency witnesses who might help explain this formaldehyde Tower of Babel aren't here today. FEMA is focusing all its attention on Midwest flood relief. The Occupational Safety and Health Administration, the Environmental Protection Agency, the National Institute of Occupational Safety and Health, the Consumer Product Safety Commission, and HUD, also have information relevant to our discussion this morning. But they were only invited to participate late last Thursday, as federal offices were closing for the holiday weekend. Understandably, they declined to participate without more time to prepare.

That's unfortunate because those agencies could help us interpret results from multiple government sponsored tests of occupied and unoccupied FEMA trailers and component materials. The test data suggests some wood products, obtained from new sources including China, yielded higher than expected formaldehyde readings. Under pressure to meet emergency trailer production demand, some of that wood may have been put into trailers before normal "off gassing" could occur. Poor ventilation during storage and use, particularly in hot climates, then trapped and concentrated gasses that might otherwise leach off harmlessly. So what happens to a trailer after it's manufactured may have as much to do with its subsequent safety as the inclusion of unregulated wood products in the first place.

Remember, formaldehyde is a widely used chemical in consumer products. It is also the natural by-product of many natural processes, like combustion, and a constant element of basic metabolic functions. It's in our bloodstream. Each of us releases some formaldehyde into this room when we exhale. Eliminating formaldehyde isn't the issue. The goal is to keep sustained formaldehyde exposure below the levels suspected to cause health effects. According to some groups, that may be 100 parts per billion or less for most people.

So, where did the FEMA trailers score? According to data recently released by the Centers for Disease Control and Prevention, the average level of formaldehyde in occupied trailers fell between 72 and 91 parts per billion. Our staff did some random tests around the Capitol with a handheld meter and got a reading of 80 parts per billion right next door in the Committee anteroom. But some trailers tested much higher. Some lower. Since the CDC tests didn't account for any contribution from "background" levels – like those we found here – it's even less clear how much formaldehyde came from wood in the trailers.

That leaves trailer occupants, already victimized by one storm, caught in a lingering tempest of post-Katrina political scapegoating, bureaucratic finger-pointing, and litigation. Once again the Committee risks being used as a discovery proxy for plaintiffs suing companies called to testify before us. Instead, we should be asking FEMA why contract requirements for habitable mobile units weren't more specific, why inspection procedures weren't consistent, and why heath concerns didn't trigger standardized testing and, where necessary, prompt remediation. We should be asking federal science and health agencies how to establish, and measure, workable standards for formaldehyde exposure in realistic settings.

We will have the opportunity today to ask representatives of the travel trailer industry whether they'll be able – or willing - to ramp up production to meet emergency demand when FEMA calls again. I hope their answer doesn't mean we'll have even fewer options to meet critical housing needs after the next, inevitable, disaster.

Chairman WAXMAN. Thank you, Mr. Davis.

Let me ask unanimous consent that Representatives Donnelly and Lampson be permitted to join us at today's hearing and to ask questions after all members of the committee have had that opportunity.

Without objection, that will be the order.

Mr. Souder, you had some reservations about the documents being put into the record. Let me just make a unanimous consent request that the staff minority and majority reports be made part of the record, and we will continue to talk to you about the documents.

Mr. SOUDER. Thank you for your consideration.

Chairman WAXMAN. Without objection, that unanimous consent will be agreed to.

[The information referred to follows:]

UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM
MAJORITY STAFF ANALYSIS
JULY 9, 2008

TRAILER MANUFACTURERS AND ELEVATED FORMALDEHYDE LEVELS

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

I. BACKGROUND 4

II. THE COMMITTEE'S INVESTIGATION 9

III. GULF STREAM'S TRAILERS 9

A. The Manufacturing Process 10

B. Formaldehyde Complaints from FEMA Trailer Occupants 12

C. FEMA's Request to "Put This Issue to Bed" 13

D. Gulf Stream's Testing of FEMA Trailers 14

E. Gulf Stream's Research on Formaldehyde 16

F. Gulf Stream's Response to FEMA 17

G. Gulf Stream's Public Statements and Communications to Occupants 18

H. Gulf Stream's Compensation 19

IV. FOREST RIVER'S TRAILERS 19

V. KEYSTONE'S TRAILERS 22

VI. PILGRIM INTERNATIONAL'S TRAILERS 24

EXECUTIVE SUMMARY

A year ago, the Oversight Committee held a hearing to investigate reports of elevated levels of formaldehyde in travel trailers purchased by the Federal Emergency Management Agency (FEMA) for victims of the Gulf Coast hurricanes of 2005. This hearing revealed that FEMA ignored multiple warnings about dangerous levels of formaldehyde because testing "would imply FEMA's ownership of the issue." According to documents released at the hearing, a FEMA lawyer instructed the field staff: "Do not initiate any testing until we give the OK. ... Once you get results and should they indicate some problem, the clock is running on our duty to respond."

At the hearing, David Paulison, the Administrator of FEMA, testified that the Centers for Disease Control and Prevention would begin testing occupied trailers to assess the dangers of formaldehyde exposure. In February 2008, after testing more than 500 trailers and mobile homes, CDC reported finding dangerous levels of formaldehyde and urged FEMA to move occupants out of the trailers. According to CDC, four manufacturers of travel trailers — Gulf Stream, Forest River, Keystone, and Pilgrim — had a significant percentage of trailers with formaldehyde levels above 100 parts per billion (ppb), a level which can trigger adverse health effects.

At the request of Chairman Henry A. Waxman, the Committee initiated an investigation into what the four manufacturers knew about elevated formaldehyde levels in their trailers and how they responded. In the course of the investigation, the Committee received 9,000 pages of documents from the trailer manufacturers and interviewed several former employees. This staff analysis summarizes the information received by the Committee.

The documents and interviews show that the trailer manufacturers received complaints about high formaldehyde levels in their trailers from hurricane evacuees and others and tested formaldehyde levels in both occupied and unoccupied trailers. The most extensive testing was conducted over two years ago by Gulf Stream, the largest supplier of FEMA trailers. Gulf Stream found formaldehyde levels at or above 100 ppb in every occupied FEMA trailer tested, with two trailers having levels over 600 ppb. The company found even higher levels — up to 4,000 ppb — in unoccupied trailers waiting to be deployed by FEMA. One contractor hired by Forest River to test a trailer in Illinois found formaldehyde levels above 1,500 ppb and advised the manufacturer to "post signs ... stating 'hazardous – do not enter.'"

Despite these test results, the trailer manufacturers did not warn trailer occupants of the dangerous levels of formaldehyde. Gulf Stream did not tell FEMA the company had found elevated levels of formaldehyde in occupied trailers or warn FEMA not to place families in its unoccupied trailers. The company did, however, send FEMA a letter making some of its test results available to FEMA, an offer which the agency apparently never pursued. Another trailer manufacturer, Keystone, revised its owner's manual to advise consumers that new travel trailers were expected to emit formaldehyde, which it called a "naturally occurring substance," resulting in "a strong odor and chemical sensitivity" that "is not a defect in your recreational vehicle."

Gulf Stream's Trailers

Within weeks after Hurricane Katrina struck in August 2005, FEMA awarded Gulf Stream Coach, Inc., contracts worth over $500 million for the production of over 50,000 travel trailers. These contracts were among the few contracts for travel trailers that FEMA awarded directly to a trailer manufacturer. According to former Gulf Stream employees, the company hired additional employees and opened new manufacturing plants to meet the FEMA order. The employees told the Committee that Gulf Stream used materials that had a "foul" and "very strong chemical odor" that was "just overwhelming" to make the FEMA trailers.

As the Gulf Stream trailers began to be deployed, the company received complaints about formaldehyde exposure from occupants. In March 2006, one occupant implored Gulf Stream: "There is an odor in my trailer that will not go away. It burns my eyes and I am getting headaches every day. PLEASE, PLEASE HELP ME!!" About the same time, a local television station in Biloxi began reporting on formaldehyde levels in FEMA trailers. In an e-mail to Dan Shea, Gulf Stream's co-president, a FEMA official asked: "Does your field staff have the capability to put this to bed." Mr. Shea replied: "I will send a person down ... to test units."

The company subsequently tested approximately 50 trailers and components of trailers, including 11 occupied trailers. Gulf Stream discovered high levels of formaldehyde concentrations in trailers they had manufactured and also in trailers made by other manufacturers. Every occupied trailer tested had levels above 100 ppb, the level at which CDC, the Environmental Protection Agency (EPA), the World Health Organization, the Consumer Product Safety Commission, and the National Institute of Occupational Safety and Health say acute adverse health effects can be experienced. Four of the 11 occupied trailers had levels above 500 ppb, the level at which federal occupational safety regulations require medical monitoring for worker exposure. Formaldehyde levels in over 20 unoccupied trailers had formaldehyde levels above 900 ppb, a level at which EPA says it is dangerous to be exposed for more than eight hours in a lifetime, with several trailers having levels above 2,000 ppb.

Internal Gulf Stream documents show the company treated the test results and the issue of formaldehyde in its trailers as a public relations and legal problem, not a public health threat. The company told the Committee that the trailer testing was done in anticipation of litigation, not to assess health risks. The company did not advise occupants of its travel trailers that company testing showed they could be exposed to hazardous levels of formaldehyde. Gulf Stream also did not warn FEMA not to deploy additional unoccupied travel trailers until the formaldehyde problem could be addressed. Thousands of unoccupied trailers were subsequently placed into service by FEMA. Despite receiving complaints from trailer occupants, Gulf Stream did tell CNN: "We are not aware of any complaints of illness from our many customers of Cavalier travel trailers over the years, including travel trailers provided under our contracts with FEMA."

Gulf Stream spent over a month carefully crafting a letter to FEMA regarding formaldehyde and the company's test results. The final letter did not mention any of the test results of unoccupied trailers, and it referenced only an OSHA standard from 1992 that permitted workers to be exposed with medical monitoring to formaldehyde levels up to 750 ppb (0.75 parts per million). The letter stated:

> We would like to reiterate our willingness to assist you in addressing any concerns about our products. Our informal testing has indicated that formaldehyde levels of indoor ambient air of occupied trailers fall below, for instance, the OSHA standard of .75 parts per million. We are willing to share these informal test results with you.

There is no evidence that FEMA responded to Gulf Stream's offer to share the test results.

Gulf Stream is a privately held company run by two brothers who serve as co-presidents, Dan Shea and Brian Shea. In 2005 and 2006, the years that Gulf Stream was supplying trailers to FEMA, the compensation of the co-presidents nearly doubled to over $1.1 million per year for each co-president.

Forest River's Trailers

Forest River, Inc., did not contract directly with FEMA, but did provide thousands of trailers to FEMA as a subcontractor for North American Catastrophe Services, which had an existing contract with FEMA. According to FEMA, the agency purchased over 12,000 Forest River trailers for use by displaced Gulf Coast residents through North American Catastrophe Services and through the open market.

According to Forest River, it received no complaints from occupants of FEMA trailers and conducted no testing of FEMA trailers. In January 2006, however, Forest River did test a trailer purchased by an Illinois consumer after receiving repeated complaints. This testing, which was conducted by a contractor, found a formaldehyde level of over 1,500 ppb, causing the contractor to advise Forest River to post signs warning that the trailer had hazardous levels of formaldehyde and limiting access to "hazardous waste trained personnel." When bed, seating, and foam materials were removed from the trailer, the formaldehyde levels increased to over 3,000 ppb, which the contractor attributed to "off-gassing of formaldehyde" from exposed wood products.

The contractor speculated that the levels of formaldehyde in the trailer were so high that the wood in the trailer must have been contaminated with a source of formaldehyde after the trailer was built. When the Committee staff contacted the owner of the trailer, he stated that he did not bring any sources of formaldehyde into the trailer and advised Forest River of this fact.

Forest River's response to these results was to "bake out" the trailer for five days at 120 degrees, which lowered the formaldehyde levels to 120 ppb, above the level that triggers acute adverse health effects. Forest River initiated a switch to low-emitting construction materials in October 2006. Two trailers tested by Forest River in 2007 and 2008 had formaldehyde levels below 100 ppb.

Keystone's Trailers

FEMA bought over 6,000 trailers manufactured by Keystone RV Company on the open market for use by displaced Gulf Coast residents. According to Keystone, it did not receive complaints from occupants of FEMA trailers and conducted no testing of FEMA trailers. Keystone did, however, conduct testing in 2007 and 2008 of four travel trailers sold to other customers. Three of these tests showed formaldehyde levels above 200 ppb with the ventilation system off, and one showed levels over 100 ppb. The formaldehyde levels dropped below 100 ppb when the ventilation system was turned on.

In September 2006, after the news media covered reports of dangerous levels of formaldehyde in FEMA trailers, Keystone revised its owner's manual to explain that new travel trailers were expected to off-gas formaldehyde resulting in "a strong odor and chemical sensitivity." According to the revised manual, formaldehyde is a "naturally occurring substance" and "[t]his is not a defect in your recreational vehicle." The manual advises ventilation to lower formaldehyde levels.

Pilgrim's Trailers

FEMA bought over 5,000 trailers manufactured by Pilgrim International, Inc., on the open market for use by displaced Gulf Coast residents. According to documents submitted by Pilgrim, it conducted no testing of FEMA trailers or other trailers.

I. BACKGROUND

On August 29, 2005, Hurricane Katrina made landfall in Louisiana. The hurricane, along with Hurricane Rita, displaced tens of thousands of residents throughout the Gulf Coast in 2005. Thousands of homes and apartment building across the region were destroyed by wind and flood damage.

Following the devastating hurricanes, the Federal Emergency Management Agency began working to provide temporary housing for the displaced residents. At the time, FEMA's primary method for providing temporary shelter was purchasing travel trailers, mobile homes, and park models through private contractors and the open market. The federal government spent approximately $2 billion purchasing over 120,000 travel trailers for displaced residents of the Gulf Coast to use as temporary housing.[1]

In March 2006, WLOX, a television news station in Biloxi, Mississippi, reported that a couple living in a travel trailer supplied by FEMA were experiencing adverse health effects due to the level of formaldehyde in the travel trailer.[2] Formaldehyde is a chemical widely used in

---

[1] Department of Homeland Security Office of Inspector General, *Review of FEMA's Use of Proceeds from the Sales of Emergency Housing Units* (Feb. 2008) (OIG-08-23).

[2] *Couple Discovers High Levels of Formaldehyde in FEMA Trailer*, WLOX (Mar. 17, 2006).

building materials, often as a component of glue, adhesives, paint, or coatings. It has been classified as a "known carcinogen" by the International Agency for Research on Cancer.[3] It can also cause a number of acute adverse health effects at elevated levels, including: burning sensations in the eyes, nose, and throat; coughing and chest tightness; nausea; and skin rashes and allergic reactions.[4]

In May 2006, the Sierra Club announced that it had conducted testing of FEMA-supplied travel trailers and that most tested trailers had elevated levels of formaldehyde.[5] Formaldehyde in outdoor ambient air is typically found at levels below 10 parts per billion (ppb); indoor air concentrations in conventional homes typically range from 10 to 30 ppb; and formaldehyde levels can reach 40 ppb on busy city streets.[6] The Sierra Club results showed that 83% of the 52 trailers tested had formaldehyde concentrations above 100 ppb. According to the Centers for Disease Control and Prevention,[7] the Environmental Protection Agency,[8] the Consumer Products Safety Commission,[9] the National Institute for Occupational Safety and Health,[10] and the World Health Organization,[11] acute adverse affects from formaldehyde exposure begin to be experienced at exposures of 100 ppb, especially in vulnerable individuals such as asthmatics and those with chronic illness.

FEMA's response was to deny that there were any problems with the trailers. In May 2006, its spokesperson stated, "FEMA and industry experts are monitoring the small number of cases where odors of formaldehyde have been reported, and we are confident that there is no ongoing risk."[12]

---

[3] International Agency for Research on Cancer, *IARC Classifies Formaldehyde as Carcinogenic to Humans* (June 15, 2004).

[4] Consumer Product Safety Commission, *An Update on Formaldehyde* (1997 Revision) (online at www.cspc.gov/cpscpub/pubs/725.html).

[5] Sierra Club, *Toxic Trailers* (online at www.sierraclub.org/gulfcoast/downloads/formaldehyde_test.pdf) (accessed on July 6, 2008).

[6] Centers for Disease Control and Prevention, *Interim Findings on Formaldehyde Levels in FEMA-Supplied Travel Trailers, Park Models, and Mobile Homes* (Feb. 29, 2008).

[7] Centers for Disease Control and Prevention, *Final Report on Formaldehyde Levels in FEMA-Supplied Travel Trailers, Park Models, and Mobile Homes* (July 2, 2008).

[8] Environmental Protection Agency, *Indoor Air Quality* (online at http://www.epa.gov/iaq/formalde.html) (accessed on July 8, 2008).

[9] Consumer Product Safety Commission, *An Update on Formaldehyde* (1997 Revision) (online at www.cspc.gov/cpscpub/pubs/725.html).

[10] National Institute for Occupational Safety and Health, *NIOSH Pocket Guide to Chemical Hazards* (Sept. 2005) (online at www.cdc.gov/niosh/npg/npgd0293.html).

[11] World Health Organization, *Concise International Chemical Assessment Document: Formaldehyde* (2002) (online at www.who.int/ipcs/publications/cicad/ en/cicad40.pdf).

[12] *Environmental Group Says Some FEMA Trailers Unsafe*, Associated Press (May 18, 2006).

On July 19, 2007, the Committee on Oversight and Government Reform held a hearing to investigate FEMA's response. The hearing revealed that FEMA field staff urged immediate action to address reports of formaldehyde contamination, saying "This needs to be fixed today,"[13] "we need to take a proactive approach,"[14] and there is an "immediate need"[15] for a plan of action. But despite the warnings from the field, FEMA officials in Washington refused to authorize testing of trailers because testing "would imply FEMA's ownership of this issue."[16] One FEMA attorney directed: "Do not initiate any testing until we give the OK. ... Once you get results and should they indicate some problem, the clock is running on our duty to respond to them."[17]

At the hearing, the FEMA Administrator, David Paulison, acknowledged FEMA could have moved faster and that it now recognized there was a problem.[18] He also informed the Committee that FEMA had asked CDC to commence testing of occupied trailers.[19]

In December 2007, CDC began testing the formaldehyde levels of a random sampling of the travel trailers, mobile homes, and park models that had been provided by FEMA to displaced resident of the Gulf Coast in 2005 and 2006.[20] CDC tested 519 FEMA-supplied occupied travel trailers, park models, and mobile homes.[21] The number of travel trailers, park models, and mobile homes chosen to be studied by CDC "was based on power calculations designed to allow researchers to draw statistically valid conclusions" for common types of "travel trailers, park models, and mobile homes within that population of FEMA-supplied travel trailers, park models, and mobile homes."[22]

---

[13] Internal FEMA E-mail from James Russo to Eric Gentry, Sidney Melton, Eugene Romano, Crystal Payton, and Mary Hudak (Mar. 17, 2006).

[14] Internal FEMA E-mail from Eric Gentry to James Russo, Sidney Melton, Eugene Romano, Crystal Payton, Mary Hudak, and James Lowery (Mar. 17, 2006).

[15] Internal FEMA E-mail from James Lowery to James Kaczorowski, Colonel Scott, and Michael Miller (Mar. 17, 2006).

[16] Internal FEMA E-mail from Peggy Phillips to Michael Miller, Patricia Trask, Tracy Aupperlee, Sidney Melton, Jill Igert, and others (June 16, 2006).

[17] Internal FEMA E-mail from Patrick Preston to Jill Igert, Jordan Fried, and Kevin Souza (June 15, 2006).

[18] House Committee on Oversight and Government Reform, *Hearing on FEMA's Toxic Trailers*, 110th Cong. (July 19, 2007).

[19] *Id.*

[20] Federal Emergency Management Agency, *CDC to Begin Testing Trailers for Formaldehyde* (Dec. 13, 2007).

[21] Centers for Disease Control and Prevention, *Interim CDC Findings — Formaldehyde Levels in FEMA-Supplied Travel Trailers, Park Models, and Mobile Homes* (Feb. 29, 2008).

[22] *Id.*

CDC released the results of the testing and its interim findings in February 2008.[23] The testing results confirmed that there were elevated levels of formaldehyde in the tested travel trailers. In the interim report, CDC identified four brands of travel trailers — Gulf Stream, Forest River, Keystone, and Pilgrim — as having "significantly higher formaldehyde levels" than other brands.[24] In July 2008, CDC released its final findings, which confirmed its interim findings.[25] Of the tested trailers, 56% of Gulf Stream travel trailers tested above 100 ppb, 53% of Keystone travel trailers tested above 100 ppb, 51% of Pilgrim travel trailers tested above 100 ppb, and 42% of Forest River travel trailers tested above 100 ppb. In contrast, only 6% of Fleetwood travel trailers and 13% of Fleetwood CA travel trailers tested above 100 ppb.[26] See Table 1.

Table 1. CDC Findings on Formaldehyde Levels, by Manufacturer

Brand	Range (ppb)	Weighted Percentage of the Sample with Levels	
		≥ 100 ppb	≥ 300ppb
Gulf Stream	3-590	56%	9%
Forest River	17-510	42%	6%
Fleetwood	3-140	6%	0%
Fleetwood CA	7-300	13%	3%
Pilgrim	25-520	51%	3%
Keystone	23-480	53%	11%
Other	57-96	37%	3%

In its final report, CDC observed that the measured formaldehyde levels were likely to "underrepresent occupant exposures in the early months of occupation and even the average exposure over time the trailers were occupied because formaldehyde levels tend to be higher in newly constructed trailers and during warm weather."[27] Because of the high levels CDC detected, the agency recommended that FEMA begin taking steps to move people, especially children, the elderly, and those with chronic diseases, out of the trailers with higher levels of formaldehyde.[28]

---

[23] Federal Emergency Management Agency and Centers for Disease Control and Prevention, *CDC Releases Results of Formaldehyde Level Tests: FEMA to Expedite Relocation of Residents from Temporary Housing Unites* (Feb. 14, 2008).

[24] Centers for Disease Control and Prevention, *Interim CDC Findings — Formaldehyde Levels in FEMA-Supplied Travel Trailers, Park Models, and Mobile Homes* (Feb. 29, 2008).

[25] Centers for Disease Control and Prevention, *Final Report on Formaldehyde Levels in FEMA-Supplied Travel Trailers, Park Models, and Mobile Homes* (July 2, 2008).

[26] *Id.*

[27] *Id.*

[28] *Id.*

In July 2008, CDC also released the results from further testing it had conducted on four unoccupied travel trailers that had been purchased by FEMA. CDC studied the indoor emissions of volatile organic compounds in the trailers and gases released from specific parts of the trailers, such as walls, floors, ceilings, tables, and cabinets.[29] The results of the tests showed formaldehyde was the only volatile organic compound in the trailers that could be a health hazard and that component parts in the trailers emitted formaldehyde, most notably the cabinet walls, subflooring, and bench materials.[30]

The CDC testing used 100 ppb as a benchmark for unsafe levels of exposure, which reflects the consensus of health experts. There is,however, a patchwork of other standards for formaldehyde, many of them a decade or more old. The most stringent standard is 16 ppb, which is what NIOSH recommends for long-term worker exposure.[31] This standard is based on formaldehyde's carcinogenic effects, not acute health risks. In 1992, under the first Bush Administration, the Occupational Safety and Health Administration set an action level of 500 ppb, which requires medical surveillance of exposed employees, and a regulatory standard prohibiting exposures over 750 ppb.[32] Environmental Protection Agency standards provide that it is dangerous to be exposed to formaldehyde levels over 900 ppb for more than eight hours in a lifetime.[33]

There are also standards for component parts of products, though there are no applicable federal standards for travel trailers. A 24-year-old standard of the Department of Housing and Urban Development provides that the plywood used in manufactured homes must have formaldehyde emission levels that are no more than 200 ppb and the particle board must have levels that are no more than 300 ppb.[34] The California Air Resources Board promulgated updated standards for products in 2007. These standards are much stricter than the HUD standards, requiring levels no more than 50 ppb in plywood and 90 ppb in particleboard by 2011.[35]

---

[29] Centers for Disease Control and Prevention, *Fact Sheet: Lawrence Berkeley National Laboratories Study of Unoccupied Trailers* (July 2, 2008).

[30] Centers for Disease Control and Prevention, *CDC Summary of Lawrence Berkeley National Laboratory Interim VOC Report* (June 26, 2008).

[31] National Institute for Occupational Safety and Health, *NIOSH Pocket Guide to Chemical Hazards* (Sept. 2005) (online at www.cdc.gov/niosh/npg/npgd0293.html).

[32] 29 C.F.R. § 1910.1048 (2008).

[33] Environmental Protection Agency, *Acute Exposure Guideline Levels: Formaldehyde* (online at www.epa.gov/oppt/aegl/pubs/results68.htm).

[34] 24 CFR § 3280.308 (2006).

[35] 17 CCR § 93120-93120.12 (2208).

Further complicating a discussion of formaldehyde standards, some organizations use "parts per million" as opposed to "parts per billion" to describe the standards. The standard of 100 ppb is numerically identical to a standard of 0.1 ppm.

II. THE COMMITTEE'S INVESTIGATION

On February 14, 2008, Chairman Waxman expanded the Committee's investigation into the FEMA trailers to examine what the trailer manufacturers knew and did about the problem of high formaldehyde levels.[36] On June 4, 2008, Chairman Waxman requested documents from Gulf Stream Coach, Inc., Forest River, Inc, Keystone RV Company, Pilgrim International, Inc.[37]

In the course of the investigation, the Committee has received over 9,000 pages of documents from the four trailer manufacturers: 2,200 from Gulf Stream, 600 from Forest River, 4,600 from Keystone, and 1,700 from Pilgrim. The documents include specifications for trailers, formaldehyde test results, handwritten notes, trailer warranty registrations, purchase orders for building materials, material safety data sheets, and internal e-mails and correspondence. The Committee staff has also interviewed two former Gulf Stream Coach employees who worked to construct the trailers sold to FEMA.

Each of the companies that provided documents to the Committee are also involved in litigation over the formaldehyde levels in their travel trailers, and the Committee has made accommodations on documents related to the litigation at the request of the companies. For this reason, the Committee may not be aware of all documents in the companies' possession.

III. GULF STREAM'S TRAILERS

Following Hurricane Katrina, Gulf Stream immediately began communicating with FEMA to secure a contract to manufacture travel trailers for use in the Gulf Coast by residents displaced by the hurricane.[38] By September 9, 2005, Gulf Stream had secured two contracts

---

[36] Letter from Henry A. Waxman, Chairman, to Steve Bennett, President, Pilgrim International, Inc. (Feb. 14, 2008); Letter from Henry A. Waxman, Chairman, to Richard M. Lavers, Chief Executive Officer, Coachmen Industries, Inc. (Feb. 14, 2008); Letter from Henry A. Waxman, Chairman, to Brian Shea, President, Gulf Stream Coach, Inc. (Feb. 14, 2008).

[37] Letter from Henry A. Waxman, Chairman, to Brian Shea, President, Gulf Stream Coach, Inc. (June 4, 2008); Letter from Henry A. Waxman, Chairman, to Steve Bennett, President, Pilgrim International, Inc. (June 4, 2008); Letter from Henry A. Waxman, Chairman, to Ronald J. Fenech, President, Keystone RV Company (June 4, 2008); Letter from Henry A. Waxman, Chairman, to Peter Liegl, President, Forest River, Inc. (June 4, 2008).

[38] Letter from Phil Savari, Gulf Stream Executive Vice President, to Bryan McCreary (Aug. 30, 2005); Letter from Daniel G. Shea, Gulf Stream Co-President, to Michael Wagner (Aug. 31, 2005).

with FEMA to produce over 50,000 travel trailers.[39] The contracts combined were worth over $500 million.[40] Gulf Stream's contracts with FEMA for the production of travel trailers were the largest contracts the Department of Homeland Security awarded to a private company in 2005.[41]

A. The Manufacturing Process

The FEMA contracts required Gulf Stream to dramatically ramp up its production of travel trailers. Gulf Stream produced more travel trailers in 2005 than in the three previous years combined, due to the requirements of the contract with FEMA.[42] In order to meet this increased demand, Gulf Stream hired additional employees and opened new manufacturing plants.[43]

One Gulf Stream plant with approximately 380 employees produced 100 travel trailers for FEMA per day.[44] Two former employees in this plant told the Committee that they worked 15-hour days with a frantic production schedule.[45] One employee, a group leader in charge of installing flooring in the travel trailers, stated: "you were expected to work as hard and as fast as you could" and "it was the most extreme rough conditions I've ever worked in my life and I've been in construction, nothing but construction some shape, form or way for roughly the past 12, 13 years."[46] The other employee, who was assigned to do quality control, said: "There would be supervisors and plant managers walking down the line with bullhorns screaming at us, go faster, you're not doing your job, you don't deserve your paycheck."[47]

The former Gulf Stream employees told the Committee that they experienced adverse health effects while working for Gulf Stream. One employee said that these adverse health

---

[39] Contract No. H5FEHQ-05-C-4000 (Sept. 2, 2005); Contract No H5FEHQ-05-C-4041 (Sept. 9, 2005).

[40] *Id.*

[41] HS Today, *DHS Top 25 in 2005* (online at www.hstoday.us/content/view/866/111/) (accessed on July 6, 2008).

[42] Letter from Eleanor Hill, King & Spalding LLP, to Chairman Henry A. Waxman (June 18, 2008).

[43] House Committee on Oversight and Government Reform, Transcribed Interview of Terry Slone (July, 2, 2008).

[44] House Committee on Oversight and Government Reform, Transcribed Interview of Terry Slone (July, 2, 2008).

[45] *Id.*; House Committee on Oversight and Government Reform, Transcribed Interview of Linda Esparza (July 2, 2008).

[46] House Committee on Oversight and Government Reform, Transcribed Interview of Terry Slone (July, 2, 2008).

[47] House Committee on Oversight and Government Reform, Transcribed Interview of Linda Esparza (July 2, 2008).

effects included "nose bleeds," "shortness of breath," "dizziness," and "ears bleeding."[48] The other described it as a "sinus infection that lasted the whole time I was there."[49]

These employees attributed their health effects to formaldehyde exposure. One of the employees reported that the wood materials Gulf Stream used in the production of the travel trailers for FEMA had a "foul odor" and that the odor "got worse" as "more and more came."[50] He explained that he realized the odor was coming from the wood materials used in the assembly of the travel trailers because he "would take two pieces of that and lift one up" and that it "was just overwhelming, the smell that would come from that."[51] According to the employee, "anywhere you went in the plant, you could smell it. ... It was throughout the entire plant."[52]

The employees stated that some of the wood products Gulf Stream used in the assembly of the travel trailers for FEMA was of low quality and "very sticky."[53] One of the employees stated that he discussed the matter with his supervisor and the plant manager and that he informed them the "new material you got us is no good" because "it stinks," "it's sticking together," its "slowing us down," and "it looks like its got water damage or mold or something."[54] He said their explanation was that the materials were from "a new supplier."[55]

The second employee told the Committee that it was well known at the Gulf Stream plant that the travel trailers contained a strong odor after their production. She said: "Everybody was aware of that odor. It wasn't something you had to report. Everybody smelled it."[56] She stated that workers could not stay in one of the recently completed travel trailers for "maybe 5 or 10 minutes before your eyes were watering and your nose was burning."[57] She described the travel trailers as having a "very strong chemical odor."[58]

---

[48] House Committee on Oversight and Government Reform, Transcribed Interview of Terry Slone (July 2, 2008).

[49] House Committee on Oversight and Government Reform, Transcribed Interview of Linda Esparza (July 2, 2008).

[50] House Committee on Oversight and Government Reform, Transcribed Interview of Terry Slone (July, 2, 2008).

[51] *Id.*

[52] *Id.*

[53] *Id.*

[54] *Id.*

[55] *Id.*

[56] House Committee on Oversight and Government Reform, Transcribed Interview of Linda Esparza (July 2, 2008).

[57] *Id.*

[58] *Id.*

B. Formaldehyde Complaints from FEMA Trailer Occupants

As FEMA deployed the Gulf Stream trailers, the company received numerous complaints from Gulf Coast occupants about an "odor" in their unit. On March 10, 2006, Gulf Stream received its first complaint about formaldehyde from a displaced resident of the Gulf Coast. John Smith, a Gulf Stream employee, forwarded an e-mail with an attached document titled "Daily FEMA Phone Log" to Dan Shea, Gulf Stream's Co-President; Scott Pullin, Gulf Steam's Vice President of Operations; and Phil Sarvari, Gulf Stream's Executive Vice President.

The "Daily FEMA Phone Log" is dated March 10, 2006, and summarizes a conversation between John Bruhn, a Gulf Stream employee, and an occupant of a travel trailer manufactured by Gulf Stream for FEMA. The document states:

> **Issues Discussed** Retail as strong odor, burns eyes. Unit delivered in December but only until now need to live in. I asked is it sewer gas? No. Is it LP Gas odor and has any of the detector alarms sounded? No. I asked since Dec. have you opened windows, run the A/C to air out? Yes. The odor comes and goes; One day will have and next will not.
>
> **Resolution** I directed her to the Disaster Recovery Center in Metairie. She did not have a FEMA service phone number to call.[59]

Mr. Pullin sent a reply e-mail to John Bruhn, stating: "With regards to the second call, airing out the unit and leaving the a/c run should clear up the 'New' smell until the occupant actually gets into the unit and starts using it on a regular basis. The temperatures are starting to elevate down there and will impact the amount of 'new' smell in a closed up trailer."[60]

On March 20, 2006, Gulf Stream received another complaint about formaldehyde from an occupant of a FEMA trailer in Jefferson, Louisiana. Contacting Gulf Stream through an interactive feature on the Gulf Stream website, the resident stated:

> There is an odor in my trailer that will not go away. It burns my eyes and I am getting headaches every day. I have tried many things, but nothing seems to work. PLEASE, PLEASE HELP ME!![61]

On May 19, 2006, Mr. Shea wrote a FEMA official "to confirm your direction ... that Gulf Stream is not to address any complaints we may receive ... or to make future contact with

---

[59] Internal Gulf Stream Coach e-mail from John Smith to Dan Shea, Phil Savari, and Scott Pullin (Mar. 10, 2006).

[60] Internal Gulf Stream Coach e-mail from Scott Pullin to John Bruhn, John Smith, Dan Shea, and Phil Savari (Mar 10, 2006).

[61] E-mail from Scott Pullin to Dan Shea (Mar. 21, 2006).

the occupants who made those complaints. Rather, you directed that Gulf Stream should refer all complaints to FEMA for future handling."[62]

C. FEMA's Request to "Put This Issue to Bed"

On March 16, 2006, WLOX, a television news station in Biloxi, Mississippi, reported that Paul Stewart, a displaced resident living in a FEMA-supplied trailer, and his wife Melody had been experiencing "burning eyes, burning nose, scratchy throats, nasal headaches" while living in a FEMA-supplied travel trailer and that they had discovered that the travel trailer had levels of formaldehyde significantly higher than the level at which the Environmental Protection Agency has stated these adverse health effects can occur.[63] The FEMA-supplied travel trailer Paul and Melody Stewart were living in at the time was manufactured by Gulf Stream.[64]

On the same day, Dan Shea, the Gulf Stream co-president, sent an e-mail to Stephen Miller, a FEMA official, stating:

> I want to advise you of Gulf Stream Coach's use of low formaldehyde emitting materials in our Cavalier travel trailers. To my knowledge there is no requirement in the RV industry for low formaldehyde emitting materials. Where possible our company uses material that meet the HUD specification of low formaldehyde emissions for manufactured housing. ...
>
> Gulf Stream is one of the leaders in reducing formaldehyde emission in recreational vehicles.[65]

On March 21, 2006, Stephen Miller forwarded Mr. Shea's e-mail to six other FEMA employees.[66] Sidney Melton, one of the FEMA officials who received the e-mail, responded: "Are they willing to come down and test their new units?"[67] Later that morning, Mr. Miller forwarded two internal FEMA e-mail chains to Mr. Shea at Gulf Stream. In forwarding one e-mail, Mr. Miller wrote: "This is the big stir. I have your email but is there anything additional

---

[62] Letter from Daniel G. Shea, Gulf Stream President, to David Porter, FEMA Program Specialist (May 19, 2006).

[63] *Couple Discovers High Levels of Formaldehyde in FEMA Trailer*, WLOX (Mar. 17, 2006).

[64] Paul Stewart, Prepared Remarks of Paul Stewart for Committee on Oversight and Government Government Reform and Oversight Committee (July 19, 2007).

[65] E-mail from Dan Shea to Stephen Miller (Mar. 17, 2006).

[66] Internal FEMA E-mail from Stephen Miller to Sidney Melton, Michael Miller, Stephen DeBlasio, Juan Gil, Jill Igert, and Robert Parker (Mar. 21, 2006).

[67] Internal FEMA E-mail from Sidney Melton to Stephen Miller (Mar. 21, 2006).

you can provide."[68] In the other e-mail to Mr. Shea, Mr. Miller asked: "Does your field staff have the capability to put this to bed?"[69]

A few hours later, Dan Shea responded to Mr. Miller's e-mail, replying: "I will send a person down to Baton Rouge on Friday to test units in your staging area."[70]

D. Gulf Stream's Testing of FEMA Trailers

Between March 26, 2006, and May 15, 2006, Scott Pullin, Gulf Stream's Vice President of Operations, tested the formaldehyde levels within both occupied and unoccupied travel trailers that Gulf Stream had manufactured for FEMA, as well as unoccupied travel trailers manufactured by other companies. During this timeframe, based upon documents Gulf Stream provided to the Committee, it appears that over 200 separate formaldehyde readings were taken on approximately 50 travel trailers.

Mr. Pullin tested the formaldehyde levels within eleven occupied Gulf Stream travel trailers in March and April 2006.[71] For each of the tested Gulf Stream travel trailers, Mr. Pullin noted the temperature inside and outside each trailer, the humidity inside and outside each trailer, and the level of formaldehyde within each trailer.[72] Mr. Pullin also took down notes about his conversations with some of the displaced residents within the trailers.[73]

Mr. Pullin's tests indicated formaldehyde levels at or above 100 parts per billion within every occupied travel trailer he tested. The results showed formaldehyde levels ranged between 100 ppb and 620 ppb.[74] Four of the 11 occupied trailers had levels above 500 ppb, the OSHA action level for mandatory medical monitoring.[75]

Mr. Pullin's notes show that some Gulf Stream travel trailer occupants indicated there was "no problem with trailer, never any problems w/eye; nothing other than new smell,"[76] while other occupants mentioned "burning"[77] and "no problems at first."[78]

---

[68] E-mail from Stephen Miller to Dan Shea (Mar. 21, 2006).

[69] E-mail from Stephen Miller to Dan Shea (Mar. 21, 2006).

[70] E-mail from Dan Shea to Stephen Miller (Mar. 21, 2006).

[71] Gulf Stream Coach, Inc., *Activated Trailer Records* (Mar. 28, 2006 - Apr. 22, 2006).

[72] *Id.*

[73] Gulf Stream Coach, Inc., *Handwritten Notes of Scott Pullin* (Mar. 28, 2006 - Apr. 22, 2006).

[74] Gulf Stream Coach, Inc., *Activated Trailer Records* (Mar. 28, 2006 - Apr. 22, 2006).

[75] *Id.*

[76] Gulf Stream Coach, Inc., *Handwritten Notes of Scott Pullin* (Mar. 28, 2006 - Apr. 22, 2006).

Mr. Pullin also tested over 35 new travel trailers that had not yet been deployed for displaced residents. Of these trailers, over 25 were manufactured by Gulf Stream and 7 by other companies. Mr. Pullin's testing of the unoccupied trailers showed even higher levels of formaldehyde in the unoccupied travel trailers. At least 10 Gulf Stream trailers contained formaldehyde levels in excess of 900 ppb, a level at which EPA says it is dangerous to be exposed for more than eight hours in a lifetime. One Gulf Stream trailer had formaldehyde levels of 2,690 ppb.[79] Other makes of travel trailers contained similarly high levels of formaldehyde, with each trailer having formaldehyde levels over 900 ppb and one trailer having levels of 4,480 ppb.[80]

On April 21, 2006, Mr. Pullin sent an e-mail to Dan Shea, the company co-president, with a draft spreadsheet attached for keeping track of the formaldehyde testing data.[81] On April 24, 2006, a Gulf Stream employee e-mailed another spreadsheet of formaldehyde testing results to both Mr. Pullin and Mr. Shea.[82] On April 24, 2006, Dan Shea wrote a report that listed travel trailers by brand with their tested levels of formaldehyde, in parts per million.[83] This report identified 18 trailers with levels over 100 ppb, 17 trailers with levels over 500 ppb, 750 ppb, and 900 ppb, 7 trailers with levels over 2,000 ppb, 4 trailers with levels over 3,000 ppb, and 2 trailers with levels over 4,000 ppb.[84]

Between March 31, 2006, and April 14, 2006, Gulf Stream also conducted extensive formaldehyde testing on one of its travel trailers and the component parts. The testing again showed elevated levels of formaldehyde in the trailer, confirmed that the component parts used in the assembly of the travel trailer, including medium density fiberboard and lauan paneling, contained formaldehyde, and revealed that an increase in temperature within the travel trailer would dramatically increase the levels of formaldehyde.[85]

In addition, beginning on March 24, 2006, Gulf Stream's general counsel and outside counsel began coordinating efforts to have a sample of paneling tested for its formaldehyde

---

[77] *Id.*

[78] *Id.*

[79] Gulf Stream Coach, Inc., *Handwritten Notes of Scott Pullin* (Mar. 26, 2006 - Mar. 30, 2006).

[80] Internal Gulf Stream Coach E-mail from Barb Vining to Dan Shea and Scott Pullin (Apr. 24, 2006).

[81] Internal Gulf Stream Coach E-mail from Scott Pullin to Dan Shea (Apr. 21, 2006)

[82] Internal Gulf Stream Coach E-mail from Barb Vining to Dan Shea and Scott Pullin (Apr. 24, 2006).

[83] Gulf Stream Coach, Inc., *Stored Unit Report* (Apr. 24, 2006).

[84] *Id.*

[85] Gulf Stream Coach, Inc., Handwritten Notes of Scott Pullin (Mar. 31, 2006 - Apr. 14, 2006).

emissions.[86] Gulf Stream used the type of paneling in the assembly of the travel trailers it manufactured for FEMA.[87] This testing was performed by Progressive Engineering, Inc. On April 27, 2006, Progressive Engineering completed its testing of two samples of paneling. The results showed that the formaldehyde emissions for each sample of paneling were elevated.[88]

E. Gulf Stream's Research on Formaldehyde

During the same period, Gulf Stream began a research effort to better understand the dangers of formaldehyde. As part of this effort, a professor at Purdue provided Jim Shea, Gulf Stream's Chairman, with contact information for four experts on formaldehyde and indoor air quality.[89]

On April 24, 2006, Gulf Stream's outside counsel sent both Jim and Dan Shea a 1997 document created by the Consumer Products Safety Commission entitled "An Update on Formaldehyde."[90] The document included the following information:

> Formaldehyde is a colorless, strong-smelling gas. When present in the air at levels above 0.1 ppm (parts in a million parts of air), it can cause watery eyes, burning sensations in the eyes, nose and throat, nausea, coughing, chest tightness, wheezing, skin rashes, and allergic reactions. It has also been observed to cause cancer in scientific studies using laboratory animals and may cause cancer in humans. ... Formaldehyde is normally present at low levels, usually less than 0.03 ppm in both outdoor and indoor air.[91]

On May 8, 2006, Gulf Stream's outside counsel provided Gulf Stream's general counsel with information on formaldehyde that had been prepared by the Formaldehyde Council, the Agency for Toxic Substances and Disease Registry, the Environmental Protection Agency, and the National Cancer Institute.

The information included EPA's statement that formaldehyde at levels above 100 ppb "can cause watery eyes, burning sensation in the eyes and throat, nausea, and difficulty breathing."[92] It also included the National Cancer Institute's statement that when formaldehyde

---

[86] E-mail from Tom Brandt to Brian Hoffer, lawyer for Kindig & Sloat, and Ken Brinker, General Counsel for Gulf Stream (Mar. 24, 2006).

[87] Letter from Kelly Rentfrow, Esco Industries General Manager, to Gulf Stream Coach (Apr. 24, 2007).

[88] Progessive Engineering, Inc., *Formaldehyde Measurement Using Two Hour Desiccator Test* (Apr. 27, 2006).

[89] E-mail from Gary Carlson to Jim Shea (Mar. 27, 2006).

[90] E-mail from Marcia Madsen to Dan Shea and Jim Shea (Apr. 24, 2006).

[91] Consumer Products Safety Commission, *An Update on Formaldehyde* (Revised 1997).

[92] Environmental Protection Agency, *Sources of Indoor Air Pollution-Formaldehyde* (Updated Mar. 3, 2006).

is present in the air at levels exceeding 100 ppb, "some individuals may experience health effects such as watery eyes; burning sensations of the eyes, nose, and...coughing; wheezing; nausea; and skin irritation."[93] ATSDR's fact sheet on formaldehyde described OSHA's permissible exposure limit for formaldehyde of 750 ppb, as well as NIOSH's recommendation that formaldehyde exposure in an occupational setting be limited to less than 16 ppb.[94]

F. Gulf Stream's Response to FEMA

The documents show that Gulf Stream carefully considered how to communicate its testing results to FEMA. The first version of a letter to FEMA regarding formaldehyde in Gulf Stream's trailers was drafted on March 21, 2006.[95] The final letter was not sent until May 11, 2006, over six weeks later.[96] During the interim, multiple drafts of the letter were prepared and revised.

Gulf Stream executives met with FEMA officials in Washington, DC, on April 25, 2006. Notes taken at that meeting make no mention of Gulf Stream sharing the information it had gained about formaldehyde in the travel trailers FEMA was distributing to displaced residents of the Gulf Coast.[97]

On May 11, 2006, Gulf Stream did write to FEMA regarding the formaldehyde in travel trailers. In relevant part, Gulf Stream's letter states:

> We wanted to follow up on our recent conversations regarding the travel trailers supplied to FEMA. ... As we have previously indicated, we wanted to again let you know that we remain committed to providing high quality products. ...
>
> As we discussed, no particular information on ventilation or standards for indoor air quality including formaldehyde are required by the RVIA code or government regulation relating to travel trailers. However, as we further discussed, even though not required, Gulf Stream has taken the added step of specifying low emission materials. ...
>
> We would like to reiterate our willingness to assist you in addressing any concerns about our products. Our informal testing has indicated that formaldehyde levels of indoor ambient air of occupied trailers fall below, for instance, the OSHA standard of .75 parts

---

[93] National Cancer Institute, *Formaldehyde and Cancer: Questions and Answers* (online at www.cancer.gov/cancertopics/factsheet/Risk/formaldehyde) (accessed on May 8, 2006).

[94] Agency for Toxic Substances and Disease Registry, *ToxFAQs for Formaldehyde* (online at www.atsdr.cdc.gov/tfacts111.html) (accessed on May 8, 2006).

[95] Internal Gulf Stream Coach e-mail from Denise Woody to Dan Shea (Mar. 21, 2006).

[96] Letter from Philip S. Savari, Gulf Stream Executive Vice President, to Deidre Lee, FEMA Director of Operations (May 11, 2006).

[97] Gulf Stream Coach, Inc., Handwritten Notes (Apr. 25, 2006).

per million. We are willing to share these informal test results with you. And, as mentioned during our meeting, if FEMA wishes to conduct formal testing protocols on any designated units, we are willing to participate in that testing.[98]

Gulf Stream did not inform FEMA that all of the 11 occupied units it tested had levels above 100 ppb. It did not inform FEMA that four of the 11 occupied units had levels above 500 ppb, which is the OSHA action level for mandatory medical monitoring. And it did not inform FEMA that over 20 of the approximately 40 unoccupied trailers it tested had formaldehyde levels above the 750 ppb OSHA standard.

G. Gulf Stream's Public Statements and Communications to Occupants

On April 24, 2006, Porter Novelli, a public relations firm retained by Gulf Stream, advised Gulf Stream that CNN was preparing a story on the health issues of Katrina victims, with a key part of the story focused on the "trailer/formaldehyde angle."[99] According to Porter Novelli, "the story will likely run next week."[100]

Over the next few days, Gulf Stream's co-president and chairman, Porter Novelli, and Gulf Stream's outside counsel sent versions of a draft statement to one another via e-mail.[101] The statement was finalized on April 27, 2006. Although Gulf Stream had received complaints from FEMA trailer occupants, it said: "We are not aware of any complaints of illness from our many customers of Cavalier travel trailers over the years, including travel trailers provided under our contracts with FEMA. ... Although not required for travel trailers, our company goes the extra step to specify low formaldehyde emissions building materials from our suppliers."[102]

---

[98] Letter from Philip S. Savari, Gulf Stream Executive Vice President, to Deidre Lee, FEMA Director of Operations (May 11, 2006).

[99] E-mail from Mike Heimowitz, Senior Vice President, Porter Novelli to Dan Shea, Gulf Stream Coach Co-President, Jim Shea, Gulf Stream Coach Chairman, Marcia Madsen, Gulf Stream outside counsel, and Luke Levasseur, Gulf Stream oustside counsel, and others (Apr. 24, 2006).

[100] *Id.*

[101] E-mail from Luke Levasseur to Mike Heimowitz, Carolyn Tieger, Dan Shea, Jim Shea, and Marcia Madsen (Apr. 25, 2006); E-mail from Dan Shea to Brian Shea (Apr. 26, 2006); E-mail from Mike Heimowitz to Dan Shea, Jim Shea, Marcia Madsen, Luke Levasseur, and Carolyn Tiger (Apr. 26, 2006); E-mail from Mike Heimowitz to Dan Shea, Jim Shea, Marcia Madsen, Luke Levasseur, and Carolyn Tieger (Apr. 26, 2006); E-mail from Dan Shea to Marcia Madsen (Apr. 27, 2006); E-mail from Mike Heimowitz to Dan Shea, and Jim Shea (Apr. 27, 2006); E-mail from Mike Heimowitz to Dan Shea, and Jim Shea (Apr. 28, 2006).

[102] *Statement*, Gulf Stream Coach, Inc. (Apr. 27, 2006).

On April 28, 2006, Porter Novelli informed Gulf Stream that CNN had "thanked us for our 'prompt response' and asked whether we will say it on camera."[103] Porter Novelli recommended that Gulf Stream "NOT go on camera," but did suggest that Gulf Stream could answer some additional follow up questions.[104]

On May 16 and May 22, 2006, CNN aired stories that addressed formaldehyde in travel trailers supplied by FEMA to displaced residents of the Gulf Coast. The May 16, 2006, story aired on the CNN show "American Morning" and the May 22, 2006, story aired on Anderson Cooper's "360 Degrees."[105] Included within both stories were Gulf Stream's statements that they "received no complaints of illnesses" and that they use "low formaldehyde emission building materials."[106]

Although the Committee requested all documents from Gulf Stream relating to formaldehyde in FEMA travel trailers, the Committee received no documents from Gulf Stream that advised trailer occupants of Gulf Stream's testing results. In fact, the Committee received no documents in which Gulf Stream officials even discussed the option of informing trailer occupants of the health hazards they could face.

H. Gulf Stream's Compensation

The Committee requested information from Gulf Stream related to the compensation of its president before and after FEMA awarded the company the contract to manufacture travel trailers. Gulf Stream has two co-presidents. The information provided by Gulf Stream showed that the compensation for each co-president was approximately $580,000 in 2004, $1,260,000 in 2005, $1,130,000 in 2006, and $515,000 in 2007.[107]

IV. FOREST RIVER'S TRAILERS

FEMA purchased over 12,000 travel trailers manufactured by Forest River, Inc.[108] Forest River did not have a contract with FEMA, but it did have a subcontract with a FEMA contractor, North American Catastrophe Services. North American Catastrophe Services purchased 5,000

---

[103] E-mail from Mike Heimowitz to Dan Shea, Jim Shea, Marcia Madsen, Luke Levasseur, and Carolyn Tieger (Apr. 28, 2008).

[104] *Id.*

[105] *American Morning,* CNN (May 16, 2006); *360 Degrees*, CNN (May 22, 2006).

[106] *Id.*

[107] Letter from Eleanor Hill, King & Spalding to Chairman\ Henry A. Waxman (June 18, 2006).

[108] E-mail from Stephen Miller, FEMA, to Gina Smith, Jill Igert, Tracy Haynes, Gail Haubrich, Steve Mason, and Elizabeth Doomes (July 19, 2006).

Forest River trailers for FEMA under this subcontract.[109] The remainder of the Forest River trailers was presumably acquired by FEMA on the open market from travel trailer dealers.

Forest River has told the Committee that it does not have records of any complaints about formaldehyde from displaced residents of the Gulf Coast hurricanes of 2005. It has also said it did not conduct any testing of trailers acquired by FEMA.[110]

Documents obtained from Forest River indicate that in at least one instance, Forest River was aware of a formaldehyde problem with a trailer sold to a private citizen and tested the trailer. In this instance, a resident of Illinois purchased a Forest River travel trailer on July 21, 2003.[111] By October 2003, the owner complained to Forest River about "strong odors," but no action was taken to address the complaint.[112] In June 2005, the owner returned to the Forest River dealer complaining of a "very strong formaldehyde odor" and the dealer installed new air vents to improve ventilation.[113] On January 4, 2006, the trailer was returned to the Forest River factory for testing.[114]

Forest River conducted a series of tests on this trailer. On January 16, 2006, an outside contractor tested the trailer for formaldehyde and detected a formaldehyde level of 1,520 ppb.[115] The contractor notified Forest River that this level of formaldehyde required specific response actions to be "immediately implemented."[116] Forest River was told to "post signs on the trailer unit stating 'hazardous – do not enter,'" ensure that "only hazardous waste trained personnel remove any materials or items within the trailer," and guarantee that "all items or materials removed from the trailer unit are to be classified as hazardous materials."[117]

All bed and seating fabric and foam materials were subsequently removed from the trailer and the trailer was tested again.[118] The concentrations of formaldehyde were found to have

---

[109] Letter from Peter J. Liegl to Chairman Henry A. Waxman (June 24, 2008).

[110] Letter from Peter J. Liegl to Rep. Henry A. Waxman (June 24, 2008).

[111] Forest River, Inc., Surveyor _____ Time Line (undated).

[112] Forest River, Warranty Repair Claim Form (Oct. 27, 2003).

[113] Forest River, Warranty Repair Claim Form (June 16, 2005).

[114] Forest River, Inc., Surveyor _____ Time Line (undated).

[115] ACM Engineering & Environmental Services, Formaldehyde Air Sample Analysis Report (Feb. 1, 2006).

[116] *Id.*

[117] *Id.*

[118] ACM Engineering & Environmental Services, Formaldehyde Air Sample Analysis Report (Mar. 6, 2006).

increased to 3,220 ppb.[119] The testing contractor concluded that "a source or sources of formaldehyde are still present within the trailer and are off-gassing."[120] The contractor reported:

> The higher concentration of airborne formaldehyde for the second air sample ... indicates that the fabric and foam bedding and seating materials were enclosing formaldehyde. ... Once exposed to the open air, the formaldehyde within the wood began off-gassing. This off-gassing of formaldehyde caused the concentration of airborne formaldehyde to increase, as the data indicates.[121]

The contractor also told Forest River:

> It seems very unlikely that the building materials within the trailer unit have been off-gassing formaldehyde continuously at this high concentration level or higher for the three (3) years since the trailer unit was built. The source or sources of formaldehyde most likely have been brought into the trailer unit after the trailer was built and have contaminated materials within the trailer unit.[122]

At the recommendation of the contractor, Forest River next implemented a "bake out" procedure. The internal air temperature of the trailer was heated to 120 degrees for five days with periodic purging of the internal air.[123] Upon completion, formaldehyde was found to be present at concentrations of 120 ppb. The contractor concluded that the travel trailer could be reoccupied, and the trailer was returned to its owner on May 12, 2006.[124]

Majority Committee staff contacted the owner of the trailer, who stated that he did not bring any sources of formaldehyde into the trailer and that he had informed Forest River of this.[125] There is no evidence in the record that indicates that Forest River took any additional steps to determine the source of contamination in this trailer or to determine whether other trailers exhibited the same characteristics.

Forest River has taken steps to reduce formaldehyde levels in its products prospectively. In October 2006, Forest River decided to switch to low formaldehyde emitting construction material.[126] Two trailers tested in 2007 and 2008 had formaldehyde levels below 100 ppb.[127] Forest River switched to even lower formaldehyde emitting materials in February 2008.[128]

---

[119] *Id.*

[120] *Id.*

[121] *Id.*

[122] *Id.*

[123] ACM Engineering & Environmental Services, Formaldehyde Air Sample Analysis Report (Apr. 10, 2006).

[124] Forest River, Inc., Surveyor _____ Time Line (undated).

[125] Telephone Conversation between Committee Staff and Trailer Owner (July 7, 2008).

[126] Letter from Peter J. Liegl to Chairman Henry A. Waxman (June 24, 2008).

V. KEYSTONE'S TRAILERS

FEMA purchased over 6,000 travel trailers manufactured by Keystone RV Company.[129] FEMA did not have a contract with Keystone and purchased these trailers from trailer dealers on the open market.

Keystone has informed the Committee that it became aware of the health concerns associated with formaldehyde in travel trailers through media reports. According to Keystone, it received no complaints from occupants of FEMA trailers and conducted no testing of FEMA trailers.[130]

According to documents provided to the Committee, Keystone has tested four other travel trailers for formaldehyde. Three of the trailers were tested by Keystone customer service representatives.[131] These tests showed fluctuating levels of formaldehyde that appear to relate to the trailers' ventilation.

On November 16, 2007, a trailer was tested five times.[132] First, the trailer was found to have a level of formaldehyde of 170 ppb. After 15 minutes of "air exchange," the level decreased to 60 ppb. After 30 minutes of air exchange, the level increased to 110 ppb. Ventilation was discontinued and the level of formaldehyde climbed to 260 ppb. After 30 minutes of ventilation, formaldehyde levels dropped to 50 ppb.[133]

A test of a second trailer on December 3, 2007, had similar results.[134] After initially testing at 230 ppb, formaldehyde levels in the trailer dropped to 60 ppb after 15 minutes of ventilation. After being closed for half an hour, formaldehyde levels climbed back to 190 ppb. Levels dropped to 50 ppb after 30 minutes of ventilation. The customer service representative noted that it was possible that the trailer's toilet chemical could be a source of formaldehyde.[135]

---

[127] ACM Engineering & Environmental Services, Mold and Formaldehyde Gas Assessment Report (Nov. 7, 2007); ACM Engineering & Environmental Services, Mold and Formaldehyde Gas Assessment Report (Mar. 27, 2008).

[128] Letter from Peter J. Liegl to Chairman Henry A. Waxman (June 24, 2008).

[129] E-mail from Stephen Miller, FEMA, to Gina Smith, Jill Igert, Tracy Haynes, Gail Haubrich, Steve Mason, and Elizabeth Doomes (July 19, 2006).

[130] *Id.*

[131] Letter from Steven Ross, Counsel to Keystone RV Company to Committee Staff (July 7, 2008).

[132] Keystone, HCHO Test Data Sheet (Nov. 16, 2007).

[133] *Id.*

[134] Keystone, HCHO Test Data Sheet (Dec. 3, 2007).

[135] *Id.*

Similarly, a third trailer tested on February 12, 2008, had formaldehyde concentrations of 220 ppb.[136] This level dropped after ventilation. The customer service representative included a notation that it was possible that the trailer's holding tank chemical could be a source of formaldehyde.[137]

Keystone also provided three sets of formaldehyde test results for a trailer in Wisconsin. Advanced Chemical Sensors, Inc., found the level of formaldehyde to be 260 ppb.[138] The Wisconsin State Laboratory of Hygiene found the level of formaldehyde to be 460 ppb.[139] The company mSolve reported the level of formaldehyde to be 5.4 ppb. The mSolve report, which was prepared for Keystone, discounts the other two test results.[140]

In October 2006, Keystone responded to a private consumer's complaint regarding a chemical odor and a burning sensation in his eyes and nostrils related to spending time in the travel trailer he purchased. In a letter to the consumer, Keystone wrote:

> Chemical sensitivity is not new to the RV industry nor is it specific to just Keystone RV. Various components used to manufacture RV's have various chemicals in them. Over the course of time, it is normal for these chemicals to 'Off-Gas' or 'Flash-Off.' It is not unusual for people to be sensitive while others may not have any reaction."[141]

Keystone did revise its owner's manual from 2005 to 2006. In the owner's manual dated September 1, 2005, there is no mention of the issue of formaldehyde.[142] The 2006 owner's manual contains a chapter on chemical sensitivity.[143] This chapter explains to travel trailer owners that they may experience "a strong odor and chemical sensitivity."[144] The revised manual says that formaldehyde is a "naturally occurring substance" and asserts that "[t]his is not a defect in your recreational vehicle."[145]

---

[136] Keystone, HCHO Test Data Sheet (Feb. 12, 2008).

[137] *Id.*

[138] Advanced Chemical Sensors, Inc., Formaldehyde Vapor Analysis Report (May 29, 2007).

[139] Letter from Kim Dietz, Industrial Hygiene Consultant, Wisconsin State Laboratory of Hygiene, to ___ (June 11, 2007).

[140] mSolve, Formaldehyde Investigation (Aug. 8, 2007).

[141] Letter from Jim Morrical, Keystone RV Customer Service, to Marvin Motes (Oct. 6, 2006).

[142] Keystone RV Company, Owner's Manual (Sept. 1, 2005).

[143] Keystone RV Company, Owner's Manual (Sept. 1, 2006).

[144] *Id.*

[145] *Id.*

Keystone has taken steps to reduce formaldehyde levels in its products prospectively. In June 2007, Keystone decided to switch to low formaldehyde emitting construction material. In March 2008, Keystone stated that it "started the process of moving to compliance" with California's new formaldehyde standards.[146]

VI. PILGRIM INTERNATIONAL'S TRAILERS

FEMA purchased over 5,000 travel trailers that were manufactured by Pilgrim International, Inc.[147] FEMA did not have a contract with Pilgrim and purchased these trailers from trailer dealers on the open market.

Pilgrim produced no documents showing any testing of FEMA trailers or other Pilgrim trailers for formaldehyde levels.

Documents obtained from Pilgrim indicate that Pilgrim collected letters from its suppliers in May 2007 which would indicate those components of Pilgrim trailers that did not contain formaldehyde. For instance, the LaSalle Bristol Corporation supplies Congoleum brand flooring, among other products, to the recreational vehicle industry. On May 31, 2007, Congoleum wrote to LaSalle Bristol, stating "Congoleum does not knowingly use formaldehyde in any of our product formulations."[148] Congoleum also stated "our products are specifically tested for formaldehyde emissions" and the "formaldehyde emissions are below the limit of quantitation."[149] An employee at the LaSalle Bristol Corporation then had the letter sent to Pilgrim, stating, "Congo info that says no Femaldehyde. Please fax to Jeremy at Pilgrim. ... He needs for meeting."[150]

Additional letters from suppliers provided from Pilgrim include letters from CRB Birmingham, Textile Rubber & Chemical Co., Inc., Para-Chem, Inc., Chem-Tex Laboratories, Inc., ACT Technologies, Inc., Four Colors, and Premier Polymers.[151]

---

[146] Letter from Steven Ross, Counsel to Keystone RV, Co., to Majority Staff, Committee on Oversight and Government Reform (July 2, 2008).

[147] E-mail from Stephen Miller, FEMA, to Gina Smith, Jill Igert, Tracy Haynes, Gail Haubrich, Steve Mason, and Elizabeth Doomes (July 19, 2006).

[148] Letter from F. Joseph Ehrhardt, Quality Assurance Manager, Congoleum Corp., to Larry Campbell, President, LaSalle Bristol Corp. (May 31, 2007).

[149] Letter from F. Joseph Ehrhardt, Quality Assurance Manager, Congoleum Corp., to Larry Campbell, President, LaSalle Bristol Corp. (May 31, 2007).

[150] E-mail from Gay A. Eby to Evie O'Dell (Nov. 8, 2007).

[151] Letter from Mark C. Claybrook, CRB Birmingham to Danny Freeman, Global Textile Services (May 17, 2007); Letter from Bob Rodric, Textile Rubber & Chemical Co., Inc., to Clinton Poole, Global Textile Services (May 15, 2007); Letter from Robert W. Smith, Jr., Para-Chem Inc., to Clinton Poole, Global Textile Services (May 18, 2007); Letter from Dave Bilbro, Chem-Tex Laboratories, Inc., to Clinton Poole, Global Textile Services (May 17, 2007); Letter

Documents provided to the Committee were insufficient to explain why these letters were collected or the substance of the meetings that Pilgrim had regarding formaldehyde.

On June 9, 2008, Pilgrim announced that it would be selling a formaldehyde free trailer.[152] David Hoefer, the Chairman and founder of Pilgrim, stated that this new type of trailer will be "so much better for the people that are out there. It will avoid any issues that they've ever had."[153]

---

from Jerry West, ACT Technologies, Inc., to Clinton Poole, Global Textile Services (May 17, 2007); Letter from Steve Sykes, Four Colors, to David Arnold, Chem-Tech Finishers (June 4, 2007); Letter from Scott Henson, Premier Polymers, to David Arnold, Chem-Tech Finishers (undated).

[152] Pilgrim International, Inc., Press Release, Pilgrim International, Inc. Announces World Premiere of Composite RV (June 9, 2008).

[153] WLOX News (June 9, 2008).

Republican Staff Analysis
Formaldehyde and FEMA Trailers
July 2008

This is *an interim* staff analysis detailing the issue of formaldehyde in FEMA trailers, and the role of the manufacturers. Because this issue is ongoing and staff continues to obtain data, the issues discussed in the analysis remain open and subject to change.

I - Executive Summary

On July 9, 2008, the House Committee on Oversight and Government Reform will hold a hearing to further explore the issue of levels of formaldehyde reportedly emanating from travel trailers issued by the Federal Emergency Management Agency (FEMA) after Hurricanes Katrina and Rita hit the Gulf Coast in 2005. FEMA distributed these trailers for use as temporary housing for those displaced as a result of the storms.

This interim report evaluates the issue of formaldehyde and the trailer manufacturers who supplied units to FEMA after the 2005 hurricanes. It discusses the reasons the results of EPA and CDC studies are not without controversy. It shows that agencies had widely varying and inconsistent concerns about formaldehyde and discusses the absence of federal standards regulating formaldehyde in indoor air. It is important to note, however, that this report does not address the possible health effects associated with elevated or prolonged exposure to formaldehyde. These are also the subject of disagreement among government agencies and scientific studies and recommended exposure limits vary widely.

In the absence of government standards, blaming trailer manufacturers for doing what was expected of them would be misplaced and ineffective. In the 109th Congress, The Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina reported the failure of government, at all levels, to prepare and respond to a disaster that devastated people and property. The formaldehyde issue may demonstrate a continued government failure in some respects. For twenty-four years, HUD has set formaldehyde product standard and indoor air target levels for manufactured housing. Yet, these are now being criticized by other federal agencies as being too high, although these same agencies cannot agree on an alternative "safe" and reasonable standard. FEMA has compounded the problem. They reacted hastily by setting procurement requirements which effectively prevent travel trailers from being used for housing after future disasters. Serious oversight and reform efforts should resolve these various difficulties in a way which protects public health, clarifies vague government standards and does not penalize manufacturers and their tens of thousands of hard working employees.

The forthcoming hearing will examine the knowledge and role of trailer manufacturers in the formaldehyde issue. Although fourteen companies supplied trailers to the government as part of hurricane recovery efforts, only four firms were invited to testify: Gulf Stream Coach, Keystone, Forest River and Pilgrim International. According to the Committee's majority staff, these four were chosen because their units were identified by a study conducted by the Centers for Disease Control and FEMA in 2007-2008 as yielding the "highest" levels of formaldehyde.

Hurricanes Katrina and Rita resulted in massive population displacement along the Gulf Coast. Although many people chose to permanently leave the area after the storms, many others wanted to remain and rebuild their homes and lives. FEMA needed to find a housing solution that would satisfy the many needs of the displaced people. Tents were one possibility, but were obviously inadequate for long term occupancy. Docked cruise ships were also considered. Ultimately, FEMA decided to rely primarily upon travel trailers, because they provided a measure of permanence on a family's property and had basic utility capabilities.

FEMA has used such travel trailers for shelters in the aftermath of major disasters since Hurricane Andrew in 1992. Because it anticipated doing so again, FEMA proactively issued specifications for disaster response trailers in 2004. Nonetheless, the severity of the damage wrought by the 2005 hurricanes presented a challenge of a new magnitude. FEMA needed far more trailers than could possibly be bought from retail establishments. Therefore, in addition to buying trailers from dealers, FEMA directly engaged many companies and brokers to have trailers manufactured.

Trailer manufacturers responded to FEMA's needs in an unprecedented manner. For example, just days after Hurricane Katrina hit the Gulf Coast one manufacturer, Gulf Stream, was awarded a competitively bid contract for 25,000 trailers. One week later Gulf Stream was awarded another contract for 25,000 additional units, bringing their total order to 50,000. Fifty thousand trailers to be produced by one manufacturer in a relatively compressed amount of time was an unprecedented requirement for the company and the industry. In fact, because of the enormity of the disaster and the magnitude of the need, Gulf Stream expanded its planned output of trailers from 80 per day to 300 per day.[1] Indeed, FEMA hoped Gulf Stream would increase production to a rate of 800 trailers a day. The manufacturer, however, pointed out this was an impossible goal for the entire industry, and certainly not one which could be achieved by a single firm.[2]

Despite being pushed to new limits, the industry responded to FEMA's need for disaster housing by providing 120,000 travel trailers in nine months. In the same period, 25,000 park models (larger and more permanent units) and other types of manufactured homes were also supplied.

---

[1] In late August 2005 and early September 2005, Gulf Stream wrote letters to FEMA proposing production levels which started at 80 and then grew to 120. Gulf Stream and FEMA finally settled on a monthly schedule which had production levels averaging 300 trailers per day.
[2] Manufacturer supplied documents – e-mail

In the Spring of 2006, FEMA fielded a small number of calls from trailer occupants who complained about odors in their FEMA-supplied trailers. In roughly the same time period, the Sierra Club began testing some of the FEMA trailers because of specific complaints about formaldehyde. The results of the tests were released in May 2006 to considerable media fanfare. In sum, the Sierra Club believed its evaluation showed what it considered to be high levels of formaldehyde. As would be expected, with the Sierra Club findings and subsequent media attention came additional occupant complaints and the first class-action lawsuit.

In the summer of 2006, with the formaldehyde issue growing, FEMA reacted. The Agency engaged the U.S. Environmental Protection Agency (EPA) and the Centers for Disease Control (CDC) to assist in testing the level of formaldehyde gas in FEMA trailers. The tests were conducted in two stages. First, in September and October 2006, EPA tested 96 unoccupied trailers. The trailers tested were previously closed up in storage awaiting distribution. In November and December 2007, the CDC tested 519 occupied trailers. These tests were conducted in everyday use conditions. Both occupied and unoccupied trailers were evaluated to determine if the operational conditions affected the test data. The results of the EPA tests were made public in February 2007.[3] The CDC study of occupied trailers was published as an interim report in February 2008 and made final on July 2, 2008.[4]

Significant questions surrounding the tests subsequently arose. Importantly however, even assuming the CDC report was flawless; the results showed that the vast majority of trailers tested well within target formaldehyde guidelines set by the Department of Housing and Urban Development (HUD) for indoor ambient air. In fact, the arithmetic mean for the trailers in question tested nearly five times ***below*** the HUD-suggested guideline.[5]

For formaldehyde, HUD set a target of 400 parts per billion (ppb) for indoor ambient air in manufactured homes. HUD's indoor ambient air target guideline of 400 ppb is based on component standards for plywood (200 ppb) and particleboard (300 ppb). In the unoccupied units, testing revealed baseline formaldehyde levels were 1040 ppb but fell to an average of 390 ppb when the air conditioner was on. The averages fell even lower, to 90 ppb, when windows were opened. The baseline average is probably attributable to the fact the unoccupied trailers were sealed up in storage; they were in the sun and had little to no air entering or exiting. In all occupied units the average level was 77 ppb, and 81 ppb for travel trailers specifically.

---

[3] Agency for Toxic Substances and Disease Registry, US Department of Health and Human Services. Formaldehyde, Sampling of FEMA Temporary-Housing Trailers, February 2007. In October 2007 the report was updated to include a health consultation.

[4] Centers for Disease Control and Prevention, US Department of Health and Human Services, Final Report on Air Quality in FEMA Supplied Mobile Trailers, July 2, 2008.

[5] In the occupied units, the formaldehyde results showed an arithmetic mean for travel trailers of 81 ppb, with a 95% confidence interval for the mean being between 72-91 ppb.

II- Brief History of Hurricane Katrina and Rita

Magnitude and Scope of the Effects

Hurricanes Rita and Katrina were the fourth and sixth most intense tropical cyclones ever recorded in the Atlantic. Each was designated the maximum category 5 classification at some point, although both made landfall as category 3 storms. While there have been more powerful storms, these hurricanes were particularly potent because they hit a vulnerable swath of the northern coast of the Gulf of Mexico, including Texas, Louisiana, and Mississippi. Louisiana was particularly vulnerable because of its geography and the fact it had long allowed habitation in areas, such as in New Orleans, which are below sea level. Due to the unique combination of these circumstances and "a failure of initiative" by all levels of government, these hurricanes caused several times the damage of any previous storm.[6]

Numbers of Displaced Families

Katrina and Rita resulted in a massive population displacement. Over one million Gulf Coast residents were forced to leave their homes, at least temporarily, as a result of the storms. In the immediate aftermath, the Red Cross registered record numbers of overnight stays in its shelters. In some cases usage was seven times the number recorded in the 2004 hurricane season. Tens of thousands of people fled to neighboring areas. Hundreds of thousands of others remained on the Gulf Coast with no long term shelter.

III – Role of FEMA in Meeting Housing Needs

Many people left the Gulf Coast region never to return. They resettled in other areas, sometimes with the assistance of FEMA. Nevertheless, a significant number opted to stay in the Gulf Coast region and reconstruct their lives to the best of their ability. Some of these people had friends or relatives with habitable houses; others had nowhere to go. At first, shelters, such as those run by the Red Cross, met the need. However, these were often located in schools or similar facilities, and therefore could be used only temporarily. Additionally, many people wanted to return to their land, even if the structures built there had been destroyed or damaged.

Consequently, FEMA sought a housing solution which satisfied these conditions. Tents were one possibility, but they were inadequate for long term inhabitance. Docked cruise ships were also considered. Ultimately, FEMA decided to rely primarily upon travel trailers. Such units provided a measure of permanence and can be hooked up to provide basic utility capabilities. A smaller number of other types of units termed "park models" and "manufactured homes" were also purchased.

---

[6] Report of the The Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina, February 2006

FEMA had used travel trailers for emergency shelter since Hurricane Andrew in 1992. The Agency was so certain it would do so again that in 2004, it proactively issued specifications for the procurement of additional disaster response trailers. Nonetheless, the severity of the damage wrought by Hurricanes Katrina and Rita presented a challenge of a new magnitude. FEMA needed many more trailers than could possibly be bought from retail establishments. Therefore, in addition to buying trailers from dealers, FEMA engaged many manufacturers directly or through brokers. In the end, FEMA procured 120,032 travel trailers and 25,767 other types.[7]

IV - FEMA Trailer Testing

Formaldehyde Background

Formaldehyde is a naturally occurring substance used in a wide variety of applications. It is among the 25 most-produced chemicals in the world and is sometimes present in substantial concentrations indoors and outdoors. Formaldehyde is frequently an ingredient of the glues used to make particle board and plywood. Travel trailers contain walls, cabinetry, and various other components made of these materials. Over time, a small amount of the formaldehyde in these components escapes in the form of gas into the surrounding area. Formaldehyde levels can be increased by heat and humidity. Closing or storing trailers can also allow the gas concentration to increase because, without ventilation, the formaldehyde cannot dissipate. Over time, the amount of formaldehyde off-gassing decreases. The chemical has a four to five year half-life.[8]

Only two federal agencies, Department of Housing and Urban Development (HUD) and the Occupational Safety and Health Administration (OSHA), regulate the use of formaldehyde. Since 1984, HUD has limited the formaldehyde emissions of plywood (to 200 parts per billion) and particle board (300 ppb) used in the construction of "manufactured housing." HUD also suggests that formaldehyde be limited to 400 ppb or less in the indoor ambient air of such units.[9] OSHA regulates formaldehyde exposure in the workplace. The Agency has two separate standards. One, for an average workday (750 ppb) and a second for 15 minute short term exposure (2,000 ppb).[10]

It is important to note travel trailers are not subject to these or any other federal formaldehyde regulations. Nonetheless, the travel trailer industry has voluntarily accepted the HUD guidelines for its products and the plywood and particle board used in

---

[7] FEMA supplied charts on contracts quantities and numbers.

[8] October 2007 Update on February 2007 report: Formaldehyde Sampling of FEMA Temporary-Housing Trailers, Agency for Toxic Substances and Disease Registry, US Department of Health and Human Services, Page 8. The ambient concentration of formaldehyde can differ depending on three conditions: the volume of air, the amount of formaldehyde and the extent of ventilation. In other words, the effect of any amount of formaldehyde depends on the volume of the space and the amount of fresh air being circulated. The larger the area and the more fresh air, the less that formaldehyde is a problem.

[9] Formaldehyde Emissions Controls for Certain Wood Products, Manufactured Home Construction and Safety Standards, US Dept. of Housing and Urban Affairs, 24 C.F.R., 3280.308, 49 Federal Register 31996

[10] http://www.osha.gov/SLTC/formaldehyde/

their manufacture. This is a logical step because some trailer firms build manufactured homes too. Since manufactured homes and trailers have some common characteristics and share the same suppliers, in the absence of direct federal regulation, accepting a single standard standardizes their process. More importantly, from a public health standpoint, adoption of a formaldehyde standard and ambient air target level intended for similarly constructed housing that is intended for long term occupancy would provide an extra measure of safety for trailers not generally used for permanent residence.

The Controversy

The controversy involving formaldehyde in FEMA trailers began in 2006 when the Sierra Club released a report saying it had found elevated levels of formaldehyde in some of these units. The impetus for the Sierra Club testing was apparently complaints the organization received from some trailer occupants about poor indoor air quality believed to be causing problems such as burning eyes, throat irritation, headaches, and bloody noses.[11] The Sierra Club conducted its formaldehyde testing in April 2006. On May 16, 2006 the Sierra Club announced it had found what it said were elevated formaldehyde concentrations in 30 of the 32 trailers tested.[12] The findings ranged from 60 ppb to 340 ppb.

The tests on the FEMA trailers were done at the Club's own initiative. Details about the means and methods used in the testing were not available to the Committee minority staff. Therefore the scientific validity is unknown. But even accepting the Sierra Club's results at face value, it is important to note that they are within the HUD target guidelines for indoor ambient air in manufactured housing.

Since releasing the data and conducting additional tests in 2007, the Sierra Club has initiated an effort to have the Environmental Protection Agency adopt nationwide formaldehyde standards for wood emissions similar to those of the California Air Safety Board CARB), which will tighten the formaldehyde emissions from wood composites at 90 ppb for particleboard and 110 ppb for medium density fiberboard.[13]

Because of the heightened awareness of formaldehyde and in order to meet the need for impartial data, in July 2006 FEMA asked the Agency for Toxic Substances and Disease Registry (ATSDR) to evaluate air quality samples collected by the Environmental Protection Agency (EPA) from 96 unoccupied trailers stored (without ventilation) in Baton Rouge, Louisiana. The ATSDR tests were conducted between September and October in 2006. The Agency found formaldehyde at an average level of 1,040 parts per billion. ATSDR also found that operating the air conditioning and opening windows reduced formaldehyde levels significantly, to 390 ppb and 90 ppb

[11] AP articled forwarded as email, GS 00297
[12] Ibid
[13] California Air Resources Board, the regulation is a proposed rule and is expected to be finalized this Summer. The rule requires wood emissions in two phases, starting January 1, 2009 particleboard emissions are limited 180 ppb, and medium density fiberboard to 210 ppb. In 2011 the standards would lower to 90 ppb for particleboard and 110 ppb for mdf. The Recreational Vehicle Industry Association members have voluntarily accepted to comply with the CARB standards nationwide.

respectively. Any formaldehyde off-gassing which might normally have occurred as units sat unoccupied was nearly impossible in these cases because FEMA had essentially "shrink-wrapped" these unused trailers and left them in the sun. It seems that in doing so, FEMA may have unknowingly caused the formaldehyde in the trailers to become especially concentrated.

The ATSDR study also found that there was a correlation between temperature and formaldehyde levels. This is especially relevant because lower temperature and humidity is a commonly accepted method, combined with proper ventilation, to rid small confined areas (such as trailer interiors) of formaldehyde concentrations. In addition, the ATSDR declared, "the exposure scenarios examined by the sampling were not intended to represent those that people living in the trailers would experience."[14]

After the ATSDR results were known, FEMA asked the Centers for Disease Control (CDC) to study the air quality of occupied units. The study was performed in December 2007 and January 2008. The study of 519 units covered all temporary housing types, including 358 travel trailers. The mean formaldehyde result for travel trailers was 81 ppb, with a 95% confidence interval for the mean being between 72-91 ppb. Of all the occupied units of all types tested, ***only six*** had formaldehyde levels above HUD's ambient air quality guidelines. Nonetheless, based on these findings the CDC recommended relocating all travel trailer occupants.

Questions Surrounding the CDC Testing

The process by which FEMA trailers were tested by the CDC was controversial. In several ways it seemed to depart from sound practices. Consequently, there are considerable questions about the validity of the tests.

Levels considered "safe"

The CDC report "suggests" that the levels of formaldehyde in trailers are "[e]levated" and "suggests" "[a]ctions should be taken to limit further exposure to residents." Yet, the report specifies that the formaldehyde levels were "elevated" only in comparison to "[t]ypical US background levels."[15] Although this may be factually correct, it is also misleading. Comparing formaldehyde levels in relatively new 300 square foot trailers, made primarily for temporary housing, to traditional housing, provides a distorted impression. In addition, the typical background levels used for comparison in this study were derived from a study that tested average levels of formaldehyde in site-built homes in Los Angeles, Houston, and Elizabeth, New Jersey.[16] Site-built houses in these regions are likely to be older and larger than trailers and the climate in which most are located has little in common with the Gulf Coast. In fact, another study conducted by Tulane University of homes in the Baton Rouge/ New

[14] "An Update and Revision of ASTDR's February 2007 Health Consultation." October 2007
[15] Although they do not cite how they arrived at their statistic, according to the CDC normal background levels for indoor air fall between 10-30 ppb.
[16] Health Effects Institute, *Relationship of Indoor, Outdoor and Personal Air* (RIOPA) 2005

Orleans area found new site-built homes there had significantly higher formaldehyde levels.[17] If this study had been used as a baseline by the CDC instead, the report may have reached different conclusions because it would have found that FEMA trailers had levels of formaldehyde *below* the baseline.

In fact, there is some evidence that prior to releasing their report on occupied trailers; CDC officials debated what level of formaldehyde should be considered safe. In January and February 2007, the agency seemed to agree that formaldehyde in concentrations below 300 ppb would be satisfactory.[18] Eventually, however, the CDC did not specify a "safe" number. The document conceded that ***"various exposure limits developed for formaldehyde are widely variable and none relate directly to occupied trailers."*** This seems to indicate that the science on indoor formaldehyde levels is unsettled and varies from scientist to scientist.[19]

No Outside Measurements

Another criticism of the occupied trailer tests was the fact that CDC did not measure the outdoor ambient air levels around the units. Some hypothesize that hurricane-hit areas have high residual levels of toxins that were brought in or stirred up by storms. If so, formaldehyde may have been seeping into trailers in the Gulf from outside.

The CDC has given conflicting answers as to why they did not measure the outdoor air. According to the manufacturers, CDC did not conduct outside measurements because FEMA did not request them. However, when Committee staff interviewed CDC officials by telephone, they stated they "wanted" to do so, but could not because of personnel and time constraints. Later, CDC indicated it believed such measurements would probably have indicated a negligible formaldehyde level. But, even if the results were "likely" to show low levels outside, it would have been valuable to have these test results, to eliminate any uncertainty about the CDC findings.

Even if one accepts, without question, the CDC assertion that the trailers had elevated levels of formaldehyde, it is necessary to acknowledge that 513 of the 519 units tested ***below*** the HUD target guidelines for indoor ambient air quality. In fact, the arithmetic mean for the all the units combined was 77 ppb and for trailers it was 81 ppb. Both levels are five times less than the HUD target.

---

[17] R. Lemus, A.A. Abdelghani, T.G. Akers and W.E. Homer, Potential Health Risks to Exposure to Indoor Formaldehyde, *Reviews on Environmental Health,* Vols 13 Nos 1-2, 1998, Pages 91-98.

[18] In e-mails supplied to the House Science Committee, http://science.house.gov/publications it is clear that as early as January 2007, the CDC staff had prepared an executive summary stating their findings of the average concentration of formaldehyde in the trailers were well below 300 ppb and this was well below the health concern for sensitive individuals. Moreover, ATSDR's initial February 2007 Health Consultation for FEMA on formaldehyde in temporary housing trailers noted that 300 ppb represented a level of concern for formaldehyde exposure I sensitive individuals.

[19] Centers for Disease Control and Prevention, US Department of Health and Human Services, Interim Findings on Air Quality in FEMA Supplied Mobile Trailers, February 21, 2008, pg 15, footnote (6).

Methodology

Finally, there is another troubling aspect to the CDC report: the methodology. The CDC study used varying scientific techniques to reach conclusions. The study's methodology called for the 519 units to be chosen by randomly sampling the entire stock of occupied FEMA trailers. In order to conduct the random sample, CDC relied on FEMA to supply a database matching manufacturers to specific trailers. Yet, there is ample anecdotal evidence to suggest this database was incomplete and inaccurate.[20] For example, several manufacturers told staff that during the normal course of activities, FEMA would often ask a manufacturer about a specific trailer, making reference to the Vehicle Identification Number (VIN). However, often the company would report back that the given VIN was not attributable to a unit made by the particular firm. This seems to suggest that manufacturer data provided by FEMA to the CDC was incomplete and possibly inaccurate. If this is true, then the CDC report relying on this data may have been flawed from the outset. FEMA has yet to provide a database to the minority staff. In fact, it may not even be possible to create such a database given the length of time which has transpired since delivery.

Other Issues

Formaldehyde is exhaled in human breath and found in many common products. Levels of formaldehyde can be increased indoors by lighting a cigarette or starting a gas range. Cooking fish can also increase formaldehyde dramatically, to anywhere from 480 ppb to 5310 ppb. In addition, air fresheners can also emit formaldehyde. These points are significant because they illustrate the difficulties of accurately measuring in an occupied trailer the formaldehyde being emitted by the unit alone. If occupants have smoked, cooked fish on a gas range, or attempted to eliminate formaldehyde odors using air fresheners, they could increase the gas levels and complicate efforts to measure the amount produced by the trailer.

Hancock County Mississippi Study of Children Living in FEMA Trailers

On April 24, 2008, the CDC also released a health study of children in Hancock County, Mississippi who were between two and twelve years old. The study's purpose was to determine if the upper respiratory health of children living in FEMA trailers differed from those who did not. **The results showed no discernable difference**. Although this study was hampered by the inability to examine medical records which were destroyed by the storms, and the results are only applicable to the county studied, it provides some relevant insights.

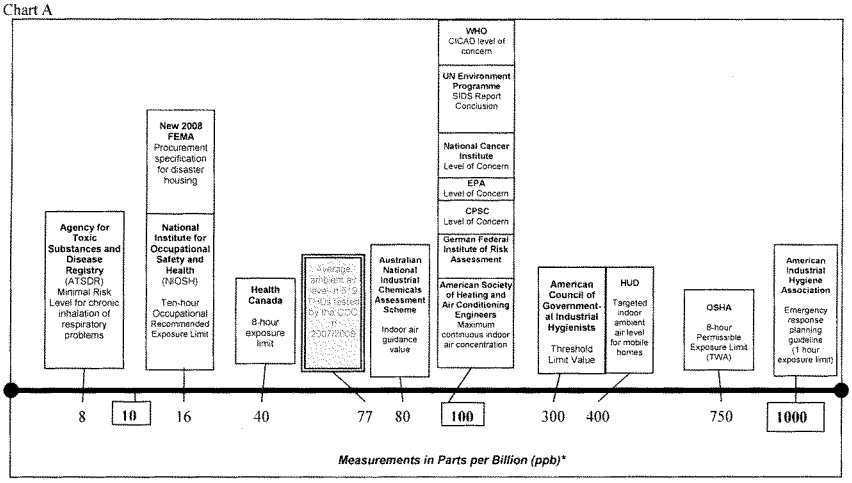
[20] Interviews with the industry and direct conversations with FEMA suggests FEMA has no easily accessible database matching trailer to manufacturer or worse a database that is incomplete or inaccurate.

V - Varying Standards

A fundamental difficulty in assessing potential problems caused by formaldehyde is the lack of uniform regulatory standards. As has been discussed, only HUD and OSHA have legally mandated standards in the United States, and these are very different. HUD restricts formaldehyde emissions in plywood to 200 ppb and particle board to 300 ppb. OSHA restricts exposure during an average workday to 750 ppb with a 15 minute short term exposure level of 2,000 ppb. Other U.S. agencies have non-binding guidelines with various ranges, from the National Institute for Occupational Safety and Health's16 ppb in ten hours, to HUD's 400 ppb in indoor ambient air in manufactured homes. The California Air Resource Board, a state regulatory entity, has established a another standard for that state (which is not yet in effect) which will require by 2014 that some formaldehyde-emitting materials emit as little as 50 ppb.

Nongovernmental organizations and foreign agencies also have a wide array of standards. The Canadian federal government sets an eight hour exposure limit at 40 ppb. The American Industrial Hygiene Association has 1,000 ppb for one hour as its emergency response planning guideline. An assortment of other organizations has recommendations between these extremes as shown in Chart A below. By comparison, the average level of formaldehyde detected in all types of temporary housing in CDC's occupied trailer study was 77 ppb. For travel trailers alone, this figure is 81 ppb.

Chart A



In light of the absence of any federally mandated formaldehyde standard for the travel trailer industry, it seems the most relevant existing standard is HUD's 400 ppb guideline, although this is intended for "manufactured houses" and is not legally binding on travel trailers. In the past, the acceptance of this standard seemed to be confirmed by the fact that manufacturers had never received any formaldehyde complaints from the trailers issued in previous years by FEMA. However, as a result of the problems reported in the Katrina and Rita housing, FEMA instituted a new standard in April 2008. Henceforth, all temporary housing of any sort procured after that time must emit 16 ppb or less of formaldehyde.

HUD Guidelines/Standards

The current HUD standards for manufactured homes were announced in 1984.[21] At the time, HUD "concluded that an indoor ambient air level of 400 ppb provides reasonable protection to manufactured home occupants."[22] The announcement also acknowledged there was "considerable disagreement" concerning this target level. The Department declared:

> The currently available medical and scientific evidence does not adequately establish the effects on health benefits of a level below 400 ppb. [I]n any event, it is not possible to implement a formaldehyde standard that will protect the entire population.[23]

In May 2008, HUD announced it would review the wood product standard. As a result, it is expected to announce new standards in the future.

NIOSH Recommended Exposure Limit and New FEMA Procurement Specification

The National Institute of Occupational Safety Institute (NIOSH) has a recommended formaldehyde exposure limit of 16 ppb. This NIOSH number is likely the basis for the limit FEMA has instituted for future purchases of temporary housing. This number is extremely low and likely impossible to meet. In fact, a recent study by a Swedish scientist suggests that on average human respiration contains formaldehyde sometimes in levels much higher than 16 ppb[24]. And as pointed out earlier, common household items and such activities such as cooking release levels of formaldehyde that in many instances would far exceed 16 ppb. School children often use glues containing formaldehyde levels in excess of this level. Therefore, FEMA's new standard may preclude travel trailers, park models and manufactured homes from being used in the future. Given CDC results that show "normal" formaldehyde background levels for site built-homes between 10 ppb and 30 ppb, it seems FEMA's new specification cannot be

---

[21] 49 FR 31996, August 9, 1984
[22] Ibid
[23] Ibid
[24] Moser,Bodrogi, Eibl et.al/ Mass spectrometer profile of exhaled breath – filed study by PTR-MS, Respitory Physiology & Neurobiology 145 (2005), pg 279. This study showed in 2.5% of the population had breath samples of 40 ppb.

met by any type of construction. In the event of another disaster on the scale of Hurricane Katrina, those who want to live on or very near their property may be forced to use only FEMA-supplied tents.

VI – The Travel Trailer Industry

Industry Description

Travel trailers are generally considered a subset of the broader category of recreational vehicles (RVs). A travel trailer is differentiated from other types of RVs by the fact it is towed by (but not mounted on) another vehicle. It can be detached from the tow vehicle, and this makes it more versatile. The recreational vehicle industry builds and ships roughly 300,000 units of all types each year in the United States. It has annual gross sales of $14.5 billion.[25] Approximately 8 million households in the U.S. own a recreational vehicle.[26] The vast majority of trailer manufacturers are located in North-Central Indiana.

Industry Response to FEMA

Only days after Hurricane Katrina devastated the Gulf Coast, members of the travel trailer industry entered contract negotiations with FEMA to supply units for the displaced population. The largest manufacturer, Gulf Stream, concluded its first agreement to supply 25,000 trailers on September 2, 2005, less than a week after Katrina struck.[27] Five days later Gulf Stream was issued another contract for 25,000 additional units, bringing FEMA's total order with Gulf Stream to 50,000.[28]

In order to fulfill contracts in a timely manner, Gulf Stream invested $60 million of its own capital to prepare most of its production facilities to manufacture trailers for FEMA. In addition to converting existing lines, Gulf Stream also acquired new production facilities in order to accommodate FEMA's demands.[29] From an initial capability to produce 80 trailers per day, Gulf Stream was able to expand daily production to more than 300 trailers by November 2005. Other manufacturers did not expand operations to the same extent as Gulf Stream, but the capabilities of other companies were still strained in an effort to deliver the trailers as quickly as possible.[30]

For past disasters, FEMA had largely been able to satisfy its temporary housing needs by buying trailers from commercial retailers. However, the demand created by Hurricanes Katrina and Rita outpaced the ability of such establishments to meet FEMA's needs. FEMA purchased a certain amount of trailers from retailers, but also contracted

[25] RVIA.org
[26] Ibid
[27] Manufacturer supplied documents - email
[28] Ibid
[29] Manufactured supplied documents – internal discussion points
[30] FEMA supplied charts on contracts quantities and numbers.

directly with manufacturers and brokers for the remaining need. A breakdown of the quantities and money spent for each can be found in Chart B.

Chart B – Number of Trailers Purchased and Costs (Data Supplied by FEMA)

	Number	Percent	Value	Percent
Off the Lot	**33,087**	**28%**	**$ 676,387,132.69**	**37%**
Direct Contract	**76,800**	**64%**	**$ 931,443,395.00**	**51%**
Via GSA	**10,145**	**8%**	**$ 202,792,386.00**	**11%**
Total	**120,032**	**100%**	**$ 1,810,622,913.69**	**100%**

For trailers bought directly from manufacturers, FEMA negotiated each contract individually. Given the magnitude of FEMA's trailer needs, it was able to extract significant price concessions. The price FEMA paid for trailers built specifically for this effort was much less than what would have been charged consumers who purchased a like unit "off the lot." In the case of Gulf Stream, FEMA paid approximately 50% of the normal retail price.[31] Additionally, FEMA did so using fixed cost contracts, meaning the price of each unit was set before production and delivery.[32]

There are no indications the trailers produced for FEMA were built significantly different from similar trailers on the retail market. In fact, internal manufacturer e-mails and company interviews indicate the trailers were built to the same specifications as the trailers supplied to FEMA in 2004 which received no formaldehyde complaints.

Industry Suppliers and Manufacturer Testing[33]

Firms which supplied trailer manufacturers with components and materials had to increase production as well, in order to allow manufacturers to fulfill FEMA's demands. This situation was exacerbated by the fact that trailer manufacturers shared many common suppliers. Historically, suppliers had assured the manufacturers that the wood

[31] The average retail price for a Gulf Stream trailer was $18,221.

[32] The primary alternative to fixed cost contracting is cost plus contracting. In cost plus the government agrees to pay whatever the costs of production end up being, and bonuses based on the contractor's performance. This type of contracting is generally used for the procurement of non-existing products whose exact costs are unknown. As a well-established product line the cost of travel trailers is very predictable and therefore FEMA did not need to use cost plus contracts.

[33] The July 2008 hearing will undoubtedly discuss formaldehyde testing conducted by the manufacturers, either of component parts, during manufacturing process, or after the delivery of trailers. Because of an agreement reached with manufacturers, staff has agreed not to disclose actual testing data or the name of the manufacturers discussed below. The documents from which the data was derived were supplied under threat of a Committee subpoena. Because these documents may be covered by attorney work product privilege, firms agreed to provide the documents to the Committee on the condition the specific content was not disclosed. The minority staff will honor that request, until being released from this agreement or the documents are otherwise disclosed.

products delivered emitted low levels of formaldehyde. These claims were generally certified by third party inspectors in the U.S., but formal certificates were not issued.

One of the key components of travel trailers is "luan board." This is a type of plywood made from "Philippine mahogany," a wood which is similar in appearance to, but different from, "mahogany." Luan plywood is used because it is light weight and relatively inexpensive. It consists of wood chips and pieces which are glued together to form sheets. The adhesives used in some instances can emit formaldehyde. Luan board is only made in China and Southeast Asia, where the source wood grows.

The dramatic increase in demand for trailer components likely increased the pressure on the Asian suppliers, which may have been thus forced to seek materials from new sources. In this pursuit of more materials to fill orders, adherence to formaldehyde emission standards may have been largely overlooked; especially since no formaldehyde testing facilities exist in Asia. The travel trailer manufacturers, which relied on supplier claims regarding formaldehyde content, could have unwittingly accepted substandard product. Until the demand surge created by Hurricanes Katrina and Rita there had been no reason for supplier certifications to be questioned, because no prior formaldehyde complaints had been lodged.

From documents produced for the Committee, it is clear the manufacturers relied on the certifications of their suppliers that the wood products being provided for trailer construction emitted low levels of formaldehyde. During the peak manufacturing period (Spring and Summer 2006), it seems some manufacturers suspected that the components they were receiving may have had formaldehyde problems. However, documents show that suppliers were still indicating that they were delivering (or had delivered) only low-emitting components. One manufacturer had luan board independently tested in March 2006 on a desiccator. This test showed high levels of formaldehyde. However, according to CDC, desiccator tests are unreliable and the large chamber method is preferable.

Although it is not clear to what extent the company's senior management was aware of this effort, employees of one manufacturer also took the initiative and participated in testing trailers provided to FEMA. The effort involved using a "home test kit," and was highly unscientific. The employee had limited scientific training and admitted to not following the kit's directions. The results of the tests showed varying levels of formaldehyde but many of the readings were high, even compared to the HUD indoor ambient air target level.

The manufacturer was concerned about the results, and tried to share this data with FEMA. However, the Agency rejected the company's entreaty. Nonetheless, records show the manufacturer implored FEMA to allow it to work with the Agency to find answers to these questions, including the installation of more powerful vents to increase air circulation in potentially problematic trailers. FEMA rejected this approach

and all other attempts by the manufacturers to help FEMA identify and resolve possible problems[34].

Supply and Mitigation Tests

In 2008, FEMA arranged for tests to be conducted at the Lawrence Berkeley National Laboratory (LBNL) of specific materials typically used in four types of trailers bought by the Agency. These tests were undertaken to determine the specific sources and amounts of formaldehyde and other contaminants present in the components. Four trailers were disassembled in this process and 45 different samples were tested. ***In a report released on May 8, 2008, the CDC announced 44 of the 45 samples taken from travel trailers were at or well below the HUD standard for wood products.***[35]

Despite testing which showed average levels of formaldehyde to be under the HUD standard, FEMA stopped issuing travel trailers for temporary housing. However, because occupants of existing units were not all capable of moving, FEMA requested CDC to identify and evaluate possible methods to reduce or eliminate formaldehyde concentrations in those units which remained occupied. Through an interagency agreement with the National Aeronautics and Space Administration (NASA), 15 travel trailers were set up at Stennis Space Center. Tests were conducted to evaluate 12 different methods to reduce the amount of airborne formaldehyde gas present. Although staff has been told the tests are completed, the results have not been made public.[36]

VII - Previous Committee Action

The Committee on Oversight and Government Reform of the U.S. House of Representatives held a hearing on July 19, 2007 focusing on FEMA's management of its trailer inventory. Some questions were also raised about the Agency's response (or lack thereof) to reports of formaldehyde gas. Despite assertions to the contrary, it is now clear FEMA's actions were driven primarily by legal and public relations concerns rather than by an interest in the health of trailer occupants. The July 2007 hearing had no manufacturer witnesses.

VIII – Industry Performance

According to documents supplied by FEMA, temporary homes for Hurricane Katrina and Rita victims were produced by 14 different manufacturers. Five of these firms (Gulf Stream, Forest River, Fleetwood, Keystone, and Pilgrim) accounted for 60%

[34] Manufacturer supplied documents show one manufacturer offered to install a powerful vent called the "fantastic vent" as a method to increase the amount of air exchange in FEMA trailers.
[35] Interim Report: VOC and Aldehyde Emissions in Four FEMA Temporary Housing Units, CDC and Lawrence Berkeley National Laboratory, May 8, 2008
[36] Reduction methods tested included ventilation, temperature/humidity control, plants, application of sealants, removal of off-gassing materials, and room air cleaners like photocatalytic oxidation.

of the total units of all types acquired by FEMA. The quantities and contract values for travel trailers can be found In Chart C.

Chart C Travel Trailers Manufacturing and Production Contractors Purchased Directly

Contract Number	Vendor	Type	Units	Amount
HSFEHQ-05-C-4000	Gulf Stream Coach	ADA	25,000	$ 249,815,000
HSFEHQ-05-C-4039	Morgan	ADA	10,000	$ 257,822,500
HSFEHQ-05-C-4039	Morgan	Regular	5,000	Included In Above Amount
HSFEHQ-05-C-4040	NACS (Forest River)	Regular	5,000	$ 60,220,000.00
HSFEHQ-05-C-4041	Gulf Stream Coach	Regular	25,000	$ 246,875,000.00
HSFEHQ-05-C-4126	Tom Raper RVs	Regular	800	$ 18,610,895.00
HSFEHQ-05-C-4128	Bourgettes of the South	Regular	6,000	$ 98,100,000.00
		Grand Total	76,800	$ 931,443,395.00

Overall FEMA's procurement of trailers was haphazard. Some of the trailers FEMA bought from retailers were much older than those built specifically for the Agency.[37] Older trailers, especially those procured from a dealer lot, would have little to no noticeable formaldehyde problems because any gas would have dissipated in the course of being displayed for sale. In contrast, models procured directly from the factory floor would almost certainly have some formaldehyde because of the absence of any off-gassing period before being put to use.

FEMA has yet to provide the Committee's minority staff or the industry a database detailing each trailer's manufacturer and point of sale. This is significant because a full and complete assessment of the trailer testing requires an accurate and reliable database. There is anecdotal evidence to suggest FEMA's database is incomplete and contains errors that might be impossible to reconcile.

[37] A common practice in the industry is for the dealers to get sell the oldest models in their inventory first. If FEMA was looking for all available trailers and was willing to purchase them sight unseen then it is highly likely that at the least they got all the older models that were on dealer lots.

IX – Litigation

Several products liability suits have been filed seeking damages from exposure to formaldehyde gas. The first of these was a class action suit filed on May 18, 2006 in the U.S. District Court for the Eastern District of Louisiana which serves New Orleans[38] The plaintiffs are:

> [p]ersons residing in manufactured mobile home, mobile homes or travel trailers...along the Gulf Coast of the United States which, in turn, were provided by FEMA after the landfalls of Hurricane Katrina on August 25, 2005 through August 29, 2005, and who are being subjected to exposure to unlawful and harmful levels of formaldehyde while residing in FEMA housing.[39]

The defendants are the United States government, Gulf Stream Coach, Fleetwood Enterprises, (including a Canadian affiliate), Starcraft RV, Pilgrim International, Monaco Coach Corporation, KZRV, and various other FEMA vendors.[40]

The suit accuses the federal government of willful gross negligence.[41] Trailer manufacturers are similarly accused, and blamed for "breach of implied and express warranties."[42] The plaintiffs seek both injunctive and monetary relief in the form of actual, consequential, punitive damages and attorney's fees.

On October 24, 2007 this suit and several others filed elsewhere were transferred to the Eastern District of Louisiana.[43] In doing so, judicial officials found that:

> All actions share factual questions relating to allegation that trailers – provided by the Federal Emergency Management Agency in the wake of Hurricanes Rita and Katrina – contain materials which emit dangerous, excessive level of formaldehyde. Centralization under Section 1407 will eliminate duplicative discovery; avoid inconsistent pretrial rulings, especially with respect to certification; and conserve the resources of the parties, their counsel, and the judiciary.[44]

The consolidated cases are referred to as "In re: FEMA Trailer Formaldehyde Products Liability Litigation." As of June 10, 2008, U.S. District Judge Kurt D. Engelhardt was continuing to conduct status conferences and hear pretrial motions.[45]

---

[38] Pls. Compl. at 1.
[39] Pls. Compl. at 3.
[40] Pls. Compl. at 2.
[41] Pls. Compl. at 17. It also appears that the plaintiffs have a pending federal tort claim.
[42] Pls. Compl. at 18-21. Certain causes of action as to certain defendants have subsequently been dismissed.
[43] Transfer Order of October 24, 2007 at 1.
[44] Transfer Order of October 24, 2007 at 1.
[45] Case Developments, updated June 17, 2008
http://www.laed.uscourts.gov/FEMA07md1873/FEMAtrailer.htm

X – Conclusion

It seems likely that at the July 2008 Oversight and Government Reform hearing, the majority will attempt to blame manufacturers for unsafe levels of formaldehyde in travel trailers sold to FEMA. This accusation will probably be based on the EPA/CDC reports on occupied and unoccupied trailers. However, while there is no dispute that these tests detected formaldehyde, the critical point in understanding the manufacturers' role is that the overwhelming majority of the trailers met the most applicable government standards for formaldehyde, and moreover, the government itself cannot agree on what is the proper standard and exposure limits.

In the immediate aftermath of Hurricane Katrina, a time of extreme crisis, FEMA decided that one way to house displaced people was in government-purchased travel trailers. For many, this was the most logical and reasonable solution. FEMA was under extreme pressure to procure, ship and set up trailers as fast as possible to allow hurricane victims to return to some sort of normalcy. That urgency was conveyed to the travel trailer industry, which responded quickly to FEMA's needs. Manufacturers, seeing an opportunity to do their part to help their fellow citizens, made trailers at a record pace and to the same specifications of retail units.

FEMA, manufacturers, and manufacturer suppliers were all under pressure. There is no real proof to demonstrate suppliers shipped only low-emitting formaldehyde components to the manufacturers, although data gleaned from manufacturers suggests this is the case. Moreover, government sponsored tests at Lawrence Berkley National Laboratory confirmed that the wood used in the construction was low emitting. This seems to disprove the contention advanced by others who speculated the source of the formaldehyde was substandard components.

Unfortunately for the manufacturers, public perception rather than science-based truth seems to be more important. The Sierra Club, trial bar, and Committee majority seem to imply that no amount of formaldehyde is "safe," despite the fact that in the great variety of recommended exposure limits, including the CARB standards being urged upon EPA by the Sierra Club, none establishes a zero exposure limit. Some in industry voluntarily followed the long-established HUD guideline, in good faith, in the absence of any mandated standard because of the similarities between RVs and the manufactured housing for which the standard was designed and because some manufacturers make both products and share some of the same suppliers.

In many ways, the industry is vindicated by government testing which showed the average levels of formaldehyde in occupied trailers were well below the HUD target

level. In unoccupied trailers the numbers were similar after standard ventilation took place. Critics, however, want tighter standards.

The travel trailers provided to FEMA voluntarily met the only reasonable analogous government approved standards and target levels for indoor ambient air. Nevertheless, it seems that some intend to use the forthcoming hearing as a platform to argue for new federal regulations on indoor air quality. To this end, trailer manufacturers are a convenient scapegoat, and are now being asked – retroactively – to meet a moving target.

Whether the HUD standard should be amended is a question that, as this report notes, HUD is currently addressing. But it is unreasonable to hold manufacturers accountable for failing to meet a standard not yet in existence. Unfortunately, some in Congress and the administration seem to be willingly or unwillingly supporting this agenda. The result, if they succeed, will provide no benefit for public health but may cripple not only an important industry and major employer, but the nation's ability to respond quickly, effectively, and compassionately after the next inevitable disaster.

Chairman WAXMAN. We will, without objection on questions, proceed with our first witness with a 10-minute round controlled by the Chair and a 10-minute round controlled by the ranking member, and then for all other witnesses, including the second panel, we will go back to the 5-minute rule.

Without objection, that will be agreed to.

Our first witness today is Dr. Michael McGeehin. Dr. McGeehin is the Director of Environmental Hazards and Health Effects Division of the National Center for Environmental Health within CDC. Dr. McGeehin has worked with CDC for nearly 30 years focusing on issues related to environmental health.

Dr. McGeehin, we are pleased to welcome you to our committee hearing today. It is it practice of this committee that all witnesses that testify before us do so under oath, so please rise.

[Witness sworn.]

Chairman WAXMAN. The record will indicate that the witness answered in the affirmative.

Your prepared statement will be in the record in its entirety. We would like to ask you to proceed and stay as close to 5 minutes as you can. We will run the clock. It will be green for 4 minutes. It will turn orange for 1 minute, and then red when the time is up. When we see the red light, we would like to ask you to see if you can conclude at that point.

STATEMENT OF MICHAEL MCGEEHIN, DIRECTOR, ENVIRONMENT HAZARDS AND HEALTH EFFECTS, NATIONAL CENTER FOR ENVIRONMENTAL HEALTH, CENTERS FOR DISEASE CONTROL AND PREVENTION

Mr. MCGEEHIN. Good morning Chairman Waxman, Mr. Davis, and other distinguished members of the committee. Thank you for the opportunity to be here today.

I am Dr. Michael McGeehin, Director of Centers for Disease Control and Prevention's Division of Environmental Hazards and Health Effects in the National Center for Environmental Health. My testimony today will focus on the results of CDC investigations related to FEMA-supplied temporary housing units following Hurricane Katrina. It will focus on two particular studies: the final report of the formaldehyde levels in FEMA-supplied travel trailers and the Lawrence Berkeley National Laboratory Interim Volatile Organic Compound Report Final Occupied Trailer Study.

From December 21, 2007, to January 23, 2008, CDC conducted testing to establish levels of formaldehyde in occupied FEMA-supplied travel trailers and mobile homes in Louisiana and Mississippi. CDC randomly selected 519 trailers and mobile homes for testing. These units represented a cross-section of the trailer types and manufacturers most frequently used by FEMA in the Gulf Coast. Interim results were announced in 2008, and a final report was released on July 2nd. The final report included additional analyses of data such as temperature, humidity, and ventilation, but did not change the conclusions and recommendations from those in the interim report.

The average levels of formaldehyde in all the travel trailers and mobile homes tested was 77 parts per billion. CDC concluded from the study that: one, formaldehyde levels found in some trailers and

mobile homes could affect the health of residents; travel trailers had significantly higher average formaldehyde levels than mobile homes; temperature, humidity, trailer type, and brand, keeping windows open, and the presence of mold were associated with formaldehyde levels; and the levels measured likely under-represented the exposure, since levels were likely higher when the trailers were first issued and during warmer months.

CDC recommended that FEMA relocate residents before the weather became hot, with priority based on those experiencing symptoms, children, the elderly, those with chronic diseases, and persons living in trailer types that had higher formaldehyde levels.

The Lawrence Berkeley Report, CDC hired Lawrence Berkeley National Laboratories to study indoor emissions of volatile organic compounds, including formaldehyde, in four vacant FEMA-supplied travel trailers. The study looked at air levels for the whole trailer and gases released from specific component parts of the trailers such as the walls, floors, ceilings, tables, and cabinets. After Lawrence Berkeley and CDC took measurements of air inside the trailers at FEMA's Purvis, MS, storage yard, CDC staff then took each trailer apart, collected, packaged, and shipped the parts to the Lawrence Berkeley National Labs, where laboratory staff tested the parts and determined the type and extent of VOCs that each part emitted.

The four trailers tested were Pilgrim, International; Gulf Stream Coach Cavalier; Four Industries Dutchman; and Coachman's Spirit of America. Analysis at the LBNL Labs found 33 VOCs, volatile organic compounds, in the air of the trailers. Of those, only formaldehyde, phenol, and TMPDDIP, a substance used to make plastic, were found at higher levels in trailers than commonly found in site-built or manufactured homes. Neither phenol nor TMPDDIP were found at levels that are considered to be health hazards.

LBNL found that the amount of formaldehyde given off by each of 44 of the 45 component parts that were tested were usually no higher than that given off by similar materials used in site-built or manufactured homes; yet, measurements inside each of the four trailers before they were disassembled revealed formaldehyde levels that were higher than those normally found in site-built or manufactured homes. This may be because the trailers used more composite wood products, have more composite wood products in a smaller space, or let in fresh air, or a combination of all these factors than the site-built or manufactured homes.

While the results of this study cannot be generalized to the entire fleet of FEMA-supplied travel trailers because of the small sample size, CDC's study of four travel trailers provides information to help guide future research to understand the effectiveness of using materials that emit lower levels of formaldehyde during construction and increasing the ventilation rates in the trailers.

That is a summary of the two major studies that we have done. We have ongoing work and some future work that we will be doing with Lawrence Berkeley that I will be happy to talk about during the questions.

I thank you for the opportunity to present this information to you today. We recognize that more needs to be done to understand the health and safety issues for all the people living in trailers and

parks and mobile homes, both in FEMA temporary housing and in other units bought commercially.

CDC has initiated discussions with FEMA and HUD on these issues. Since some trailer types had relatively low levels, we believe that construction practices are available that could ensure safe and healthy conditions. We hope to provide technical input to help achieve that kind of housing for all Americans who live, learn, and work in these units.

I would be happy to answer any questions.

I would like to add, Mr. Chairman, that when I flew up here I flew up with your colleague, Congressman John Lewis in the seat next to me, and I told him that I was going to be appearing before this committee, and he said, well, that is good. And I said, well, perhaps. And he said, I am sure they will treat you kindly. So I kind of consider that a promise. [Laughter.]

[The prepared statement of Mr. McGeehin follows:]

Testimony
Before the Committee on Oversight and Government Reform
United States House of Representatives

CDC Reports on Levels of Formaldehyde in FEMA Temporary Housing Units Supplied to Katrina Victims in the Gulf Coast

Statement of
Michael McGeehin, PhD, MSPH
Director
Division of Environmental Hazards and Health Effects
National Center for Environmental Health, Centers for Disease Control and Prevention
U.S. Department of Health and Human Services

For Release on Delivery
Expected at 10:00 a.m.
Wednesday, July 9, 2008

Good morning Chairman Waxman, Mr. Davis, and other distinguished Members of the Committee. Thank you for the opportunity to be here today. I am Dr. Michael McGeehin, Director of the Centers for Disease Control and Prevention's (CDC's) Division of Environmental Hazards and Health Effects within the National Center for Environmental Health (NCEH).

My testimony today will focus on the results of three CDC investigations related to FEMA-supplied temporary housing units and health following Hurricane Katrina:

I. *Final Report on Formaldehyde Levels in FEMA-Supplied Travel Trailers, Park Models, and Mobile Homes ("Occupied Trailer Study"), released July 2, 2008;*
II. *Lawrence Berkeley National Laboratory Interim Volatile Organic Compounds (VOC) Report ("Travel Trailer Structural Report"), released July 2, 2008; and*
III. *Assessment of Health Complaints Among Children Living in FEMA Temporary Housing Units in Hancock County, Mississippi ("Hancock County Child Health Record Review"), released April 24, 2008.*

I. Final Occupied Trailer Study

Background. From December 21, 2007, to January 23, 2008, CDC conducted testing to assess levels of formaldehyde in occupied FEMA-supplied travel

trailers and mobile homes in Louisiana and Mississippi. CDC randomly selected 519 travel trailers and mobile homes for testing. These units represented a cross-section of the trailer types and manufacturers most frequently used by FEMA in the Gulf Coast. Interim results were announced in February 2008, and a final report was released on July 2, 2008. The final report included additional analyses of data, such as temperature, humidity and ventilation, but did not change the conclusions and recommendations from those in the interim report.

Results. Average levels of formaldehyde in all FEMA-supplied travel trailers and mobile homes tested were about 77 parts per billion (ppb). CDC concluded that:

1. formaldehyde levels found in some travel trailers and mobile homes were higher than typical U.S. indoor levels, and at levels found in some trailers and mobile homes, formaldehyde exposure could affect health.;
2. travel trailers had significantly higher average formaldehyde levels than park models and mobile homes;
3. higher indoor temperature and humidity, and closed windows, each was associated with increased formaldehyde levels, and formaldehyde levels were associated with the presence of mold and were higher for certain travel trailer types and brands than for others; and
4. the levels measured probably under-represented long-term exposures since levels tend to be higher in newly constructed travel trailers and during warmer weather.

Recommendations. CDC recommended that FEMA relocate residents before the temperatures in the region increased, with priority given to occupants suffering symptoms potentially attributable to formaldehyde exposure, and to vulnerable populations such as children, elderly persons, and persons with chronic respiratory illnesses, and persons living in trailer types that have higher formaldehyde levels. CDC also recommended that while residents await relocation they take certain steps to reduce exposure, such as spending time outdoors and maintaining indoor temperature at the lowest comfortable level.

II. Interim Lawrence Berkeley National Laboratory Volatile Organic Compounds (VOC) Report

Background. CDC contracted with Lawrence Berkeley National Laboratories (LBNL), part of the Department of Energy, to study indoor emissions of volatile organic compounds (VOCs), including formaldehyde, in four vacant FEMA-supplied travel trailers. These four travel trailers were on average two years old. The study looked at air levels for the whole trailer and at gases released from specific parts of the trailer, such as walls, floors, ceilings, tables, and cabinets. After LBNL and CDC took measurements of air inside these trailers at FEMA's Purvis, Mississippi, storage yard, CDC staff took each trailer apart, then collected, packaged, and shipped the parts to Lawrence Berkeley National Laboratories, where laboratory staff tested the parts in small chambers to determine the type and extent of VOCs each part emitted. The four travel trailers

tested were: Pilgrim International, Gulfstream Coach Cavalier, Thor Industries Dutchmen, and Coachmen's Spirit of America.

Results.

Analysis at LBNL found volatile organic compounds in the air of the travel trailers. Of those, only formaldehyde, phenol, and TMPD-DIB (a substance used to make plastic) were found at levels higher in trailers than commonly found in site-built or manufactured homes. Formaldehyde was the only compound considered to be of possible human health significance at the observed concentrations (range: 310 ppb to 780 ppb).

The major findings from the LBNL investigation are that whole-trailer formaldehyde air levels are high, ventilation rates are low, and the emissions from the tested wood products appear to be consistent with those found commonly in the building industry. These findings indicate that differences in the construction/design of trailers may lead to elevated formaldehyde concentrations and whole trailer emission rates (i.e. the cumulative effect of too much formaldehyde-emitting material in too small a space with insufficient ventilation, even though construction materials individually meet standards generally used in the building industry). Differences between these trailers and other housing, which may contribute to the elevated formaldehyde concentrations, include an extensive wood surface area in a relatively small space with low ventilation rates bringing less fresh air into the travel trailers. This investigation was limited to four

travel trailers and was designed to assess indoor emissions of VOCs and aldehydes. These findings do not represent all of the FEMA-supplied travel trailers used during the Hurricane Katrina response, and cannot be used to draw conclusions about travel trailer manufacturers or brands.

CDC Recommendations. We recognize that the results from this study cannot be generalized to the entire fleet of FEMA-supplied travel trailers because of the small sample size. However, CDC's study of four travel trailers provides information to help guide future research to understand the effectiveness of using materials that emit lower levels of formaldehyde during construction and increasing the ventilation rates in the trailers. A systematic assessment of different makes and models of travel trailers in various scenarios is needed to more fully understand the impact these factors may have on formaldehyde levels.

III. Hancock County Child Health Record Review

Background. After Hancock County physicians reported an increase in breathing problems among children living in FEMA-supplied trailers and mobile homes following Hurricane Katrina, officials with the Mississippi Department of Health requested CDC assistance. CDC conducted a review of pre- and post- Katrina records of health care visits by children in Hancock County for conditions potentially related to indoor air. The investigation was developed as quick response epidemic aid assistance ("Epi-Aid"), which provides a rapid, though

limited, assessment to assist health officials in identifying potential health problems and is conducted by an officer in CDC's Epidemic Intelligence Service training program. CDC scientists reviewed 934 records, and selected the medical records of the 144 children who met the eligibility criteria established for the assessment -- that a child visited one of five health care facilities in Hancock County during the year prior to and two years following Hurricane Katrina, for any of a variety of common illnesses. These conditions included many of the common health complaints experienced by children that are likely to result in visits to a physician. Follow-up interviews were conducted with parents or guardians by telephone. During the time that the assessment was done, two-thirds of the children lived in or had lived in FEMA-supplied trailers or mobile homes.

Results. Hurricane Katrina destroyed thousands of electronic and print medical records, thus limiting CDC's data collection. This made it impossible to estimate rates for children's health-care visits for all of Hancock County. However, CDC did find that the patterns of health care visits for respiratory illness after Hurricane Katrina were similar for children who lived in FEMA-supplied trailers and mobile homes and those who did not. For the records that were available for review, the proportion of visits for upper respiratory illnesses decreased and the proportion of lower respiratory illnesses increased in the second year following Hurricane Katrina. This was true both for children who lived in trailers and mobile homes and for children who had not.

Recommendations. CDC recommended that health care providers continue to follow existing guidelines during the evaluation and treatment of children with symptoms potentially related to indoor air quality.

CDC currently is planning a long-term study of children who resided in FEMA trailers and mobile homes in Mississippi and Louisiana, to better determine if there is an association between living in a FEMA-provided travel trailer or mobile home in a storm damaged region of the U.S. Gulf Coast, and adverse health effects such as respiratory illness in children.

Thank you for the opportunity to present this information to you today. I would be happy to answer any questions.

Chairman WAXMAN. That is our intention to treat you kindly, because all we want to do is get the facts.

I will start off the questions.

Dr. McGeehin, I want to ask you about these regulatory standards, because there are a lot of different standards that are out there that apply to formaldehyde. According to the Centers for Disease Control and Prevention, outside air typically has formaldehyde levels of two or three parts per billion; is that right?

Mr. MCGEEHIN. That is what the information shows.

Chairman WAXMAN. OK. And we have a chart that we are going to put on the screen that shows the outdoor air, but conventional homes, most homes have formaldehyde levels that typically range from 10 to 30 parts per billion; is that correct?

Mr. MCGEEHIN. In the more recent studies, yes, sir.

Chairman WAXMAN. And we could add that to the chart. Busy city streets generally have formaldehyde levels that range from 20 to 40 parts per billion; is that right?

Mr. MCGEEHIN. If you are downtown on a corner and you basically are at gridlock, you can see those sorts of levels, yes, sir.

Chairman WAXMAN. The next level I want to ask you about is 100 parts per billion. At this level, some people can suffer acute health effects like burning eyes, shortness of breath, and nausea. Is that an accurate statement?

Mr. MCGEEHIN. Yes, sir. There are a number of studies that have shown that sensitized individuals have those symptoms, can have those symptoms at levels of 100 parts per billion.

Chairman WAXMAN. How about people who are not sensitized?

Mr. MCGEEHIN. The studies show that sensitized individuals can. Non-sensitized individuals can have those symptoms. I mean, it is possible that they could have symptoms at that level. That is not what the studies have shown. That would be at higher levels.

Chairman WAXMAN. OK. CDC is not the only agency that regards 100 parts per billion as a potentially dangerous level. The Environmental Protection Agency and the Consumer Product Safety Commission have also identified 100 parts per billion as a level at which negative health effects can occur. And the World Health Organization has also issued guidelines for formaldehyde saying that in non-occupational settings people should not be exposed to formaldehyde at 100 parts per billion for more than 30 minutes; isn't that correct?

Mr. MCGEEHIN. That is true, sir.

Chairman WAXMAN. Now, I want to ask you about the test results that Gulf Stream found over 2 years ago when it tested nearly 50 FEMA trailers. Gulf Stream was the largest supplier of FEMA trailers. In fact, they received a contract worth more than $500 million to provide 50,000 trailers to FEMA. First Gulf Stream tested 11 occupied trailers and it found that every occupied trailer had levels above 100 parts per billion. Four of the trailers, nearly 40 percent of those tested, had levels above 500 parts per billion. At that level, Federal regulations required medical monitoring of workers.

Dr. McGeehin, were you aware of these findings?

Mr. MCGEEHIN. No, sir, I was not.

Chairman WAXMAN. As a public health expert, do these findings concern you? Should families be living in trailers with formaldehyde levels above 100 and 500 parts per billion?

Mr. MCGEEHIN. Sir, we would recommend that families living in trailers with above 100 parts per billion, 500 parts per billion, that they be offered alternative housing.

Chairman WAXMAN. Gulf Stream conducted this testing in March 2006, more than 2 years ago, and yet the company never told the families living in these trailers. Do you think that families should have been informed about formaldehyde risks?

Mr. MCGEEHIN. Sir, I think that people should be aware of the risks of where they are living, yes. I am a firm believer that people should be aware of any information that we have that could affect their health.

Chairman WAXMAN. If you were living in one of these trailers for 2 years after the company knew that it might have been formaldehyde levels of over 100 and maybe 500 parts per billion, what would your reaction be if they hadn't told you about it?

Mr. MCGEEHIN. As a scientist or as a resident?

Chairman WAXMAN. Give me either one.

Mr. MCGEEHIN. Well, sir, I would think that if we have information that people may be exposed to levels of formaldehyde that may cause symptoms in sensitized adults and may have an effect on children who are growing up in the environment, that we should share that with the residents, and I think that it should be shared in a way that they understand what we are talking about and so they can make an informed decision.

Chairman WAXMAN. OK. Gulf Stream also tested unoccupied trailers. The levels it found were even higher. Nearly half of the trailers had levels over 900 parts per billion. EPA says that no one should be exposed to that level more than once in a lifetime. One trailer had levels above 4,000 parts per billion. Do you believe that these are dangerous levels of formaldehyde?

Mr. MCGEEHIN. I think that some of those levels, sir, just about every person would have symptoms of upper respiratory irritation, and those would be levels that we would be concerned about. Yes.

Chairman WAXMAN. Well, Gulf Stream never told FEMA that the unoccupied trailers had such high levels of formaldehyde. The result was that FEMA continued to put these trailers into service. Thousands of unoccupied Gulf Stream trailers were given to families after Gulf Stream knew they contained these incredibly high levels of formaldehyde. I suppose once they are occupied they can open the windows and the formaldehyde levels would be reduced, but, given their findings, would that concern you that FEMA was never informed, that families weren't informed, FEMA was never informed?

Mr. MCGEEHIN. Again, sir, I would have to go back to what I had said earlier. I think that if we have information that may affect people's health, that we should share that information with the people. I don't know what the correspondence was that went back and forth—and you and all the committee knows more about that than I do—between FEMA and the various trailer manufacturers. I am not aware of that.

Chairman WAXMAN. OK. Well, we learned a year ago that FEMA failed the families in the Gulf Coast. They refused to test the trailers because they didn't want to know the results and then have to take action to protect these families. I think that is a shameful failure of Government. Today we are learning that the largest maker of travel trailers did some testing and did know that its trailers had dangerously high levels, but it didn't warn anyone, and I think that is also a shameful failure.

I have 3½ minutes, and I am going to reserve that and now recognize Mr. Davis.

Mr. DAVIS OF VIRGINIA. Mr. Chairman, I am going to start with Mr. Souder, yield him as much time as he may consume.

Mr. SOUDER. I thank the ranking member.

I would prefer my questions stick with the science and that we don't speculate. Politicians speculate, lawyers speculate, but we need to focus on the science.

There were some assumptions in the questions there that were not science. Gulf Stream did a desiccator test, which is not an accurate test, more of a snapshot, just like taking a formaldehyde tester in this room is a snapshot, not science, and then attempted to raise that question with FEMA. They went beyond the call of duty to do that, but it is not an accurate, scientific test, and it was presented to you as though they had scientific evidence rather than a snapshot, which still should have been followed up on but, nevertheless, is different than having a control group or an actual test with that.

Now, I have had some correspondence, both verbal through my staff and in the two hearings at Homeland Security as well as the previous one here, with Centers for Disease Control. I want to ask on the record why there was not a control group at the time to see how much was related to other things in the area, as opposed to the trailer. The response we got from CDC was it was compared to the national rather than what was happening at Katrina at the time or the region. Is that scientific——

Mr. MCGEEHIN. Yes, sir.

Mr. SOUDER [continuing]. To not have a control group?

Mr. MCGEEHIN. Yes, sir. I mean, you wouldn't have a control group on that, I think. What we were asked to do was to look at the various types of various temporary housing units that were being used and see what the formaldehyde level was. The ambient air has been measured in many parts of the country by a number of different researchers and has been found to be consistently at two, three, and four parts per billion.

One other thing about formaldehyde that I think is important to remember, and that is that no scientists that have looked at formaldehyde consider ambient air a driver of indoor formaldehyde levels.

Mr. SOUDER. Let me ask you this question. Your office this morning said that you had no reason to question the Tulane study that studied the ambient formaldehyde air levels within site-built homes in Louisiana that averaged 370 parts per billion, more than four times that found in FEMA trailers. That would suggest, since your office is aware of that, that you know there are differences in Louisiana than elsewhere, because I don't believe that site-built homes are testing that high nationally. And that, furthermore, you

are aware that in the Hancock study by your office in Mississippi that there was no measurable difference between those people who were in trailers and were in other. That might suggest that other phenomena were occurring other than just the trailers.

Mr. MCGEEHIN. Sir——

Mr. SOUDER. You have two studies——

Mr. MCGEEHIN. Right.

Mr. SOUDER [continuing]. That suggest that the non-trailers had higher levels, or at least equivalent levels.

Mr. MCGEEHIN. Can I answer?

Mr. SOUDER. Yes.

Mr. MCGEEHIN. The second study, the Hancock study, did not look at exposure. It was tremendously handicapped by the absolute destruction of so many medical records. We did not have a base on which we could compare rates, so we were able to do what we could in what is called an EpiAid investigation, which is led by a trainee and is conducted in a 3-week period of time. With that in mind, as a secondary objective, it did look at whether or not we would see a difference in the children's respiratory symptoms, those having reported living in trailers and those that did not live in trailers, and we did not see a difference.

Do I attribute that at all to formaldehyde levels? I do not.

The first study that you talked about, the Leamer study, I have reviewed that study and it appears to be a well-done study. It used the NIOSH sampling method that we used, which is the gold standard sampling method. It was slightly different than the one we used, but it was the NIOSH method. Its results were well reported, I thought. It was a well-written article. And its conclusions were, again, having nothing to do with ambient air outside in Louisiana. The conclusions were—and I am doing this from memory, but the conclusions were along the lines of, we need to increase the ventilation in these homes, we need to look at what furniture products and wood products are being used in these homes. Its conclusions were strikingly similar to the conclusions that came out of our occupied study.

So when I was asked to review the Leamer study I found that it was a well-done study and well written and that its conclusions were justified.

Now, if you were to ask me why did that study find elevated levels of formaldehyde in those homes when many studies at the same time around the country did not, I do not have an answer for that.

As you suggested in your opening statement and as I responded to Chairman Waxman, I am going to stick to the science. I did not know what the correspondence was between the manufacturers and FEMA so I didn't comment on that, and so I don't know the answer, Congressman, as to why those levels were higher. But I will tell you that the science will tell you that ambient air is not a driver of formaldehyde in indoor environments.

Mr. SOUDER. Well, let me ask you a couple of other questions, because in your testimony you suggested that some of the things here are concentration; in other words, there has been this mis-notion that somehow, like, these manufacturers spray formaldehyde on things. The products they put in, it's not unique to a trailer. It is

unique to size and the wood and the wood quality, which we are debating.

Now, in a site-built house or a manufactured home, you said that the thing which we learned apparently, at least, from this one study different in this particular environment, and you don't know why. It could be heat. It could be the number of people in it. It could be other patterns that occur in the house such as cooking, the intensity. Would you not think, based on your own statement, that, for example, when you put a new kitchen in, because much of this is cupboards, depending on whether it has veneer or vinyl, can quadruple the parts coming off of a particular piece? When you put a new kitchen in a house, for a brief period until it dissipates, that kitchen area may have higher levels of formaldehyde?

When you put new carpet in a room, particularly if it is a smaller bedroom, you are going to go up and down, that this is not an uncommon thing even everywhere, including in our own offices, including elsewhere? It is not unique to trailers other than that they are small, and any alternative housing that we would use, such as a tent, a small wood shelter, unless it uses pure, natural wood with no adhesive, with no repellant, the smaller the area and the newer it is, the greater problem you are going to have?

Mr. MCGEEHIN. Absolutely. The component parts are what lead to formaldehyde. In my old house I brought this desk in and I put it together, and it was this beautiful desk that was perfect for the room, and I remember smelling the formaldehyde as I was unpacking it, which means at that time I was dealing with formaldehyde of at least above 500 parts per billion. So what you bring into a house can definitely affect the formaldehyde levels. Absolutely true.

Mr. SOUDER. I also want to establish for the record you said NIOSH is the gold standard. Is it true that their plus or minus is 19 percent?

Mr. MCGEEHIN. I don't know what their numbers are, but NIOSH is the gold standard. And if you look at the literature on the measurement of formaldehyde for all of the studies, they almost invariably use the NIOSH standard.

Mr. SOUDER. I would like to insert into the record the formaldehyde on the NIOSH standards. The reason is because when we start to get down to really fine lines here, those variations become very significant.

We will reserve the balance of the time. I yield back.

Mr. DAVIS OF VIRGINIA. How much time do we have, Mr. Chairman.

Chairman WAXMAN. You have 1:47.

Did you want to put something in the record, Mr. Souder? Without objection, your request will be granted.

[The information referred to follows:]

NIOSH METHOD

FORMALDEHYDE

2016

$H_2C=O$ MW: 30.03 CAS: 50-00-0 RTECS: LP8925000

METHOD: 2016, Issue 2 **EVALUATION:** FULL **Issue 1:** 15 January 1998 **Issue 2:** 15 March 2003

OSHA: 0.75 ppm; 2 ppm STEL
NIOSH: 0.016 ppm; C 0.1 ppm; carcinogen
ACGIH: C 0.3 ppm; suspected human carcinogen
(1 ppm = 1.23 mg/m³ @ NTP)

PROPERTIES: Gas; BP -19.5 °C; specific gravity 1.067 (air = 1); explosive range 7 to 73% (v/v) in air

NAMES & SYNONYMS: methanal; formalin (aqueous 30 to 60% w/v formaldehyde); methylene oxide

SAMPLING

SAMPLER: CARTRIDGE (Cartridge containing silica gel coated with 2,4-dinitrophenylhydrazine)

FLOW RATE: 0.03 to 1.5 L/min

VOL-MIN: 1 L @ 0.25 mg/m³
-MAX: 15 L @ 2.5 mg/m³

SHIPMENT: Place caps onto cartridge. Ship on ice.

SAMPLE STABILITY: 34 days @ 5 °C [1]

BLANKS: 2 to 10 field blanks per set
6 to 10 media blanks per set

ACCURACY

RANGE STUDIED: 0.025 to 2.45 mg/m³ (22-L samples) [2]

BIAS: +4.4%

OVERALL PRECISION ($\hat{S}_{rt}$): 0.057 [1,2]

ACCURACY: ±19.0%

MEASUREMENT

TECHNIQUE: HPLC, UV DETECTION

ANALYTE: 2,4-dinitrophenylhydrazone of formaldehyde

EXTRACTION: Elution with 10 mL of carbonyl-free acetonitrile

INJECTION VOLUME: 20 µL

MOBILE PHASE: 45% acetonitrile/55% water (v/v), 1.3 mL/min

COLUMN: 3.9 x 150-mm, stainless steel, packed with 5-µm C-18, Symmetry™ or equivalent

DETECTOR: UV @ 360 nm

CALIBRATION: Samplers fortified with standard solutions of formaldehyde in water

RANGE: 0.23 to 37 µg per sample [1,2]

ESTIMATED LOD: 0.07 µg/sample [1]

PRECISION ($\hat{S}_r$): 0.032 @ 1.0 to 20.0 µg/sample [1]

APPLICABILITY: The working range is 0.015 to 2.5 mg/m³ (0.012 to 2.0 ppm) for a 15-L sample. This method can be used for the determination of formaldehyde for both STEL and TWA exposures [1,2].

INTERFERENCES: Ozone has been observed to consume the 2,4-dinitrophenylhydrazine (2,4-DNPH) reagent and to degrade the formaldehyde derivative [3]. Ketones and other aldehydes can react with 2,4-DNPH; the derivatives produced, however, are separated chromatographically from the formaldehyde derivative.

OTHER METHODS: NIOSH methods 2541 [4] and 3500 [5] and OSHA method 52 [6] are other methods for determination of formaldehyde in air. NIOSH method 5700 employs 2,4-DNPH and HPLC for determination of formaldehyde on textile or wood dust [7]. A journal method employs the same procedure for formaldehyde in automobile exhaust [8].

Chairman WAXMAN. Mr. Davis.

Mr. DAVIS OF VIRGINIA. Dr. McGeehin, again thanks for being here.

What is the Federal standard for indoor ambient air levels of formaldehyde in trailers?

Mr. MCGEEHIN. In residences?

Mr. DAVIS OF VIRGINIA. In travel trailers?

Mr. MCGEEHIN. There is none.

Mr. DAVIS OF VIRGINIA. There is none. Are there formaldehyde standards for the manufacturing housing industry?

Mr. MCGEEHIN. There is for manufactured housing. There is for the component parts.

Mr. DAVIS OF VIRGINIA. And I think that there are component part standards but not an indoor ambient air standard; is that correct?

Mr. MCGEEHIN. That is true, Congressman.

Mr. DAVIS OF VIRGINIA. The indoor levels of 400 parts per billion are target levels based on wood emission standards, as I understand it, and these have been in place for 24 years.

Mr. MCGEEHIN. Are you talking about the HUD language?

Mr. DAVIS OF VIRGINIA. Yes, sir.

Mr. MCGEEHIN. Yes, that is language and is not a standard. The way you described it seems accurate to me.

Mr. DAVIS OF VIRGINIA. And from the CDC that is not an appropriate standard, is it?

Mr. MCGEEHIN. It is not a standard, right. It is, from what I understand from HUD—and it is lonely at this table—the language, when they announced their component part numbers, the language said 400 parts per billion. I have had many discussions with HUD, and they do not consider 400 parts per billion a standard.

Mr. DAVIS OF VIRGINIA. In your discussions have you worked toward promulgating any standards, any levels, any regulations that would define these so when the Government contracts out contractors know what the rules are, people who are utilizing trailers know what the rules are? Has the CDC been proactive in that at all?

Mr. MCGEEHIN. The CDC is trying to get Government agencies together to address the formaldehyde issue. My boss, Dr. Howard Frumkin, is leading a group to try to do that. I think you know, Congressman, and I think you would agree with this, that CDC is not a standard-setting agency.

Mr. DAVIS OF VIRGINIA. Right.

Mr. MCGEEHIN. I think it is in the best interest of the American public and the Congress that CDC never become a standard-setting agency because we can go in and look at something solely from the public health perspective.

However, there right now are no standards by which a manufacturer or anyone can say this is the ambient indoor air standard for formaldehyde in the United States.

Mr. DAVIS OF VIRGINIA. So as far as you know, then, what was delivered here was not not meeting standards because there were no standards, unfortunately?

Mr. MCGEEHIN. They are not only are no standards for travel trailers for indoor ambient air for formaldehyde, but there are no

standards to my knowledge—and I have been immersed in this for the last 15 months—there are no standards for travel trailers for component parts because the HUD component part standards only apply to manufactured homes and not to travel trailers. They are exempted from that.

Mr. DAVIS OF VIRGINIA. Thank you.

Mr. MCGEEHIN. That is my understanding.

Chairman WAXMAN. Thank you, Mr. Davis.

Mr. Cummings.

Mr. CUMMINGS. Thank you very much, Mr. Chairman.

One of the things, just following up on what was just stated, clearly the United States of America should not be purchasing trailers that are going to bring harm to the American people. Would you agree with that?

Mr. MCGEEHIN. Of course, sir.

Mr. CUMMINGS. Regardless of standards. We are talking about things like watery eyes; burning sensations in the eye, nose, and throat; nausea; coughing; test tightness; wheezing; skin rashes and allergic reactions. Formaldehyde exposure may also trigger attacks of those with asthma. Extremely high levels of exposure to formaldehyde can immediately be dangerous to one's health and life. No matter what the standard is, the American people were purchasing trailers that could bring harm to other American people. That is the face of this.

In Katrina we had people who were victimized at least twice. Their country failed them, except for the Coast Guard, and then living in these trailers was failing them also.

I don't know what John Lewis said. I am not here to attack you. But I want to make sure we keep the focus on this. I have said too many times over and over again our country is becoming mired in a culture of mediocrity and failure to be empathetic to human beings. So we can talk about standards here, there, and everywhere, but the question still remains: do we get what we bargain for, or are we getting something that does harm?

No, I understand you are not familiar with all the letters and the correspondence that went back and forth, but, Dr. McGeehin, Gulf Stream sent a letter to FEMA that read in part—and I just need your opinion on this very quickly—this is what the letter said. It is dated May 11, 2006. It said: "We wanted to followup on our recent conversations regarding travel trailers supplied to FEMA. As we have previously indicated, we wanted to again let you know that we remain committed to providing high-quality products. No particular information on ventilation or standards for indoor air quality, including formaldehyde, are required by Government regulations relating to travel trailers; however, even though not required, Gulf Stream has taken the added step of specifying low-emission standards."

Now listen to what they said. "We would like to reiterate our willingness to assist you in addressing any concerns about our products. Our informal testing has indicated that formaldehyde levels of indoor ambient air of occupied trailers far below, for instance, the OSHA standard of .75 parts per million—" now what that means is 750 parts per billion—"we are willing to share these informal test results with you and, as mentioned during our meeting,

if FEMA wishes to conduct formal testing protocols on any designated units, we are willing to participate in that testing."

Now, did you hear that?

Mr. MCGEEHIN. Yes, sir.

Mr. CUMMINGS. All right. What impression did you get from the letter? Does it sound like Gulf Stream is aware that its trailers have high formaldehyde levels? I mean, from what you just heard?

Mr. MCGEEHIN. No, sir.

Mr. CUMMINGS. And let me tell you that Gulf Stream did not disclose it in that May 11, 2006, letter. This is what they didn't disclose. Gulf Stream did not disclose that, of 11 occupied trailers it tested, every one of them showed formaldehyde levels at or above 100 parts per billion. It did not disclose that four of the eleven occupied trailers had formaldehyde levels over 500 parts per billion, which is OSHA's regulatory action level. OSHA requires medical monitoring of employees exposed to levels over 500 parts per billion. Should Gulf Stream have disclosed that information to FEMA?

Mr. MCGEEHIN. Sir, that is very hard for me to talk about, a correspondence that I had nothing to do with and don't know anything about.

Mr. CUMMINGS. If you were in their position, would you have disclosed it, as somebody expecting certain things from folk who are selling things to the American people with their hard-paid tax dollars, would you have expected it?

Mr. MCGEEHIN. I would go back, sir, to what I said to the chairman, that I think that sort of information should be shared and that is a good thing to share that.

Mr. CUMMINGS. And Gulf Stream also did not disclose that its testing of unoccupied trailers showed even higher levels of formaldehyde. A large number of these showed levels well over 750 parts per billion in unoccupied trailers. Should Gulf Stream have disclosed that information, do you think?

Mr. MCGEEHIN. I think if they had that information on formaldehyde that was above 750 parts per billion that would have been a good thing to let FEMA know.

Mr. CUMMINGS. Clearly, Gulf Stream spent over a month putting together this letter. They carefully crafted it, and this is what they came up with.

Thank you very much.

Again, this is about people. This is about human beings.

Thank you, Mr. Chairman.

Chairman WAXMAN. Thank you, Mr. Cummings.

Now to the Republican side. Mr. Issa.

Mr. ISSA. Thank you, Mr. Chairman.

Doctor, you are going to be the only scientist we have here. The next panel, as the ranking member said, basically are people being sued as a result of the hysteria that may or may not be valid around formaldehyde. Let me ask the first question. Is there a universal standard, or is there a number that you would set here today to say we should make sure trailers never have in them under ordinary conditions?

Mr. MCGEEHIN. Sir, I would think that if we are going to talk about——

Mr. ISSA. No, no. Is there a number?

Mr. MCGEEHIN. I am sure there is. It is not one that——

Mr. ISSA. OK. You are not prepared to give it.

Mr. MCGEEHIN. That is true.

Mr. ISSA. OK. The second one—and I want to keep it short because I only have the 5-minutes—so today the Government, you are not prepared to give a number, so 700, 500, 100. But let's take HUD's number for a moment. HUD said that basically you can outgas at 300 parts per billion out of plywood. Is that number too high?

Mr. MCGEEHIN. For travel trailers?

Mr. ISSA. No. It is a standard for wood.

Mr. MCGEEHIN. It is a standard for wood? Well, we have shown in our——

Mr. ISSA. No, it is the standard for outgassing of wood, because once you make the wood, people aren't going to make a lot of different plywoods. There is only so much MDF and plywood going to be made. Once you have a standard for home, travel trailers, they are going to tend to use the same in these industries. Is the standard of basically the glue used to bond together either MDF or plywood, is that an unreasonable standard, or are you prepared to answer is that a good number?

Mr. MCGEEHIN. Sir, I will tell you what our study showed. I am not going to say whether that is an unreasonable number. I will show you that 44 of the 45 component parts met the HUD standard, and yet for those four travel trailers the levels were in the multiple hundreds of parts per billion.

Mr. ISSA. OK. So we have a standards problem today, based on that, in my opinion.

Let me ask another question. You take plywood, carpet, plastic, you name it, the components that all produce formaldehyde, you put them in a closed, air-tight oven, you heat them up to 160 degrees. Are you going to get a concentration of formaldehyde inside the air chamber?

Mr. MCGEEHIN. You are going to get a lot of different contaminants, probably. Yes.

Mr. ISSA. OK. But, in fact, that is what a closed-up trailer is in the hot sun, no matter who made it, no matter what they used. That is what you have. One, the elevated levels are to be expected in a closed-up, hot trailer, which means we shouldn't be testing them that way. There has to be a standardized test. Can the CDC come up with a standardized test, or should some agency come up with a standardized test so that we can be comparing apples and apples for levels of ventilation, etc.? Because it sounds like the Government hasn't provided that yet, either.

Mr. MCGEEHIN. Well, I think if an agency moves toward setting a standard they will have to give guidance on how that standard would be measured.

Mr. ISSA. OK. The trailer manufacturers are going to be here after you, and Gulf Stream is the gold standard by most people. I know you have a gold standard of testing equipment, but they are the gold standard for trailers, commercial, off-the-shelf trailers, been around forever, well regarded. Most people know that name more than the other three manufacturers. Did you find anything in

your testing of those other trailers that showed that these trailers were materially different than what the commercial public buys and happily works with on a regular basis?

Mr. MCGEEHIN. We weren't able to look at whether or not these were different from that. I mean, there are the off-the-lot models that were sold to FEMA and used, and there are the spec models that were sold to FEMA and used.

Mr. ISSA. OK. Now, in your opening statement you said something that I think was very significant that I hope we can all focus on here today. You talk about mold creating formaldehyde, the relationship between the two. I will set up the question fairly narrowly. Louisiana, Mississippi, there is a huge flood, stagnant water sitting there, unfortunately in some cases with sewage and all kinds of other things. It is wet. It is rainy. It is hot. It is humid. Everything gets wet, including the people going in and out to try to salvage things. Mold is pervasive. In fact, is that a major contributor in all likelihood to the general unhealthy atmosphere that existed in that area of the south after Katrina?

Mr. MCGEEHIN. I think that mold in an indoor environment is not a good thing. I think that what we found in our multiple regression was that mold was associated with formaldehyde levels, not causative of formaldehyde levels. There is a difference.

Mr. ISSA. So you are saying that plywood causes mold?

Mr. MCGEEHIN. No, sir. I am saying that the indoor air contamination may be related to both of them at the same time.

Mr. ISSA. I see. Now, in your test you tested for formaldehyde. Because you had a large amount of people in a terrible situation post-Katrina, did you test for anything else? I can't find any other testing for the effects of mold, mildew, all the other chemicals, including sewage that backed up. What test can you provide us with that shows the other things that may have caused the same symptoms more or less that are being reported and blamed on only one chemical, formaldehyde?

Mr. MCGEEHIN. Sir, we went to the field as rapidly as we could to answer the question that was pervasive at the time, which was formaldehyde. The study was aimed at formaldehyde. We controlled for smoking and some other factors with a questionnaire, but we tested for formaldehyde.

Now, if you wanted to look at other VOCs that may be in the air of these trailers, we looked for 80 different VOCs in the Lawrence Berkeley study, found 33 that were measurable, found 3 that might be considered elevated, and the focus ended up being on formaldehyde.

Chairman WAXMAN. Thank you, Mr. Issa.

Mr. ISSA. Thank you, Mr. Chairman.

Chairman WAXMAN. Mr. Davis.

Mr. DAVIS OF ILLINOIS. Thank you very much, Mr. Chairman.

I want to talk specifically about unoccupied trailers. Between March and May 2006 Scott Pullin, one of Gulf Stream's vice presidents, tested occupied and unoccupied FEMA trailers for formaldehyde. All totaled, he tested about 50 trailers. He tested Gulf Stream trailers, and he also tested trailers made by other manufacturers. Mr. Pullin tested over 35 new travel trailers that had not yet been deployed for displaced residents. Of those trailers, over 25

were manufactured by Gulf Stream and 7 by other companies. The levels of formaldehyde in these unoccupied trailers were remarkable. Over 10 Gulf Stream trailers contained formaldehyde levels in excess of 900 parts per billion.

Dr. McGeehin, is there any question that exposure to formaldehyde at that level is dangerous?

Mr. MCGEEHIN. Sir, most studies show that when you get up above 800 parts per billion or so that most people will have symptoms at that level of formaldehyde.

Mr. DAVIS OF ILLINOIS. And so certainly at 900 it would be dangerous?

Mr. MCGEEHIN. The word dangerous has connotations to it that I am not really comfortable with. One of the things that we have tried to do in all our reports is to stay away from words that cause alarm. I would say that at that level we could expect a good proportion of the population to have symptoms that were described earlier.

Mr. DAVIS OF ILLINOIS. Then let me just go on. The Environmental Protection Agency has established 900 parts per billion as an acute exposure guideline level. This level is designed to guide emergency responders in understanding the risks from a once in a lifetime exposure such as might occur after a chemical spill. According to EPA, a one-time exposure to formaldehyde at levels exceeding 900 parts per billion could lead to irreversible harm.

Let me ask you, would it be appropriate to allow families to move into an unoccupied trailer that had formaldehyde levels of 900 parts per billion?

Mr. MCGEEHIN. I would say, Congressman, a family should not reside in a trailer that has 900 parts per billion formaldehyde.

Mr. DAVIS OF ILLINOIS. One Gulf Stream trailer had formaldehyde levels of 2,690 parts per billion. Other makes of travel trailers contained similarly high levels of formaldehyde, with seventeen trailers having formaldehyde levels over 900 parts per billion and one trailer having levels of 4,480 parts per billion.

Is it safe to allow families to move into trailers with these levels?

Mr. MCGEEHIN. Those levels are starkly higher than what we measured in our occupied trailers. I don't know how those samples were taken, but across the board, if you have levels like that, it would be an environment where many people, if not all people, would have the types of symptoms that we have talked about.

Mr. DAVIS OF ILLINOIS. Well, Dr. McGeehin, I have been informed that Gulf Stream did not inform FEMA that it had tested unoccupied trailers, nor did it disclose the remarkably high levels of formaldehyde in these trailers. In March 2006 thousands of trailers were yet to be deployed. Gulf Stream knew that there was a major problem, but they remained silent, and as a result those unoccupied trailers became occupied trailers. Families moved in and families lived in those trailers, and undoubtedly many suffered the consequences.

I believe that somebody should be held accountable. Whether it is FEMA or whether it is Gulf Stream or both, somebody should be held accountable for not alerting those families that they were moving into hazardous situations.

I thank you very much and I yield back the balance of my time.

Chairman WAXMAN. Thank you very much, Mr. Davis.

Mr. Jordan.

Mr. JORDAN. Mr. Chairman, I have questions for the second panel, so I would be happy to yield my time to Ranking Member Davis.

Mr. DAVIS OF VIRGINIA. Thank you very much.

I would start by yielding to my friend, Mr. Issa.

Mr. ISSA. Doctor, the 900 parts per billion that was talked about in a closed-up trailer, with what you would consider in a normal healthy environment—home, mobile home, travel trailer—of air exchange, this closed-up amount would drop off to something between the two parts per billion that should be ambient and whatever was in that trailer; isn't that true?

Mr. MCGEEHIN. It would drop off when you opened up the trailer, to some extent.

Mr. ISSA. So if you open up a trailer and you have positive exhaust, either through an air conditioner that ducts in outside air or an exhaust fan which trailers always come with, what would you expect 900 parts per billion and outside of 2 to equalize at when it was properly ventilated?

Mr. MCGEEHIN. I have no idea.

Mr. ISSA. OK. But in a nutshell, if you are exchanging the air once every several minutes, or a couple times an hour, wouldn't you expect it to drop off to essentially whatever the constant emission is at the highest, that it would be whatever is being outgassed, because your ambient of two is coming in. You would end up down in the less than 100, wouldn't you?

Mr. MCGEEHIN. Eventually you are going to achieve an equilibrium with the gasses that are coming off the component parts.

Mr. ISSA. Thank you.

Mr. DAVIS OF VIRGINIA. Thank you.

Everyone here is appalled at what happened to some of these poor victims of Katrina, that they ended up in trailers with high formaldehyde, people became sick. I don't think anybody up here is anything but appalled by this. What concerns me today is we only have a small piece of the puzzle. We very much appreciate you being here lending your expertise on this. It is a very important part of it.

But it seemed to me we had a crisis, you had to get a lot of product online very, very quickly, and the Government went out to the private sector, and there were really no set standards. The private sector is able to testify, I think, they had to go to new sources to try to bring the product online very quick, some of it from China and the east. There was no checking. There were no clear standards of what is going on at points when the issue was raised by some of the companies. FEMA tended to look the other way.

What is so sad today is we are focusing just on the manufacturers and not on the Government, which I think has a lot of culpability here. Not the CDC, I might add, but other agencies who, through time, have not promulgated standards, who haven't done the appropriate inspections, who I think were so concerned about getting product that they didn't look through appropriate regulation and inspection that should have occurred.

What concerns me is: are we changing this in the future when the next Katrina hits and we need to bring a lot of product online? I dare say a lot of these companies that have provided this in the past are probably unlikely to respond.

What is being done to put standards up so everybody knows what they need? Do you have any idea, Doctor? You said that CDC is having discussions at this point.

Mr. MCGEEHIN. Right. I don't know if that will lead to standards or not, but I would like to take this opportunity, if I might, just to talk. The members of this panel look at things in one way, and maybe the public health agency looks at it in a slightly different way. I look at it from this standpoint, being immersed in this since last May: I look at it that I think we need to find out what the exposures were and what the effects of these exposures were on the people residing in these trailers. That is what——

Mr. DAVIS OF VIRGINIA. Just stop there. You never found any 900 parts per billion in any of your inspections, correct?

Mr. MCGEEHIN. The highest level that we found, sir, was 590 parts per billion in the occupied trailer study.

Mr. DAVIS OF VIRGINIA. OK.

Mr. MCGEEHIN. So that is the one thing. And the other thing that has kind of driven me over the last few months is to try to figure out a solution for this for the future. We went out and we met. I am probably going to go over and I am going to probably mess up everybody's time, but we went out and we met with the RVIA and the other industry in Indiana and had a very good 8-hour session to talk about what we are doing and what they are doing. I think that somehow we have to solve this problem, and I think it is going to have to be a Government-industry sort of solution to this problem so that we have some sort of temporary housing units for the next time—and I hope this doesn t happen for a very long time—the next time we have a Katrina-size issue hit.

The idea that we don't solve this and that we are faced with this in whatever period of time I think is abhorrent to all of us.

So pretty much what I have been focused on is trying to assess what happened to the people, and we are going to try to do that with the children's health study; and, second, how can we make sure that this doesn't happen any more.

My solution to that—and I am not an enforcement agency and I am here by myself as a public health agency—my solution to that, I think it has to be Government and industry working together to figure this out.

Mr. DAVIS OF VIRGINIA. I agree.

Let me just say, Mr. Chairman, what concerns me is, because of the slant of this hearing, without having the Government here—and we have seen this time and time again—I have had companies, experts, global companies where the Government will go to them and say, we need your help in Iraq. And they say, why are we to do business with the Government with the exposure of coming before a committee, the lawsuits, and everything else? It is a high risk for some of these companies. We forget that. If we had appropriate standards and oversight this wouldn't happen. I hope it doesn't happen again. I think it has been very constructive. Thank you.

Mr. MCGEEHIN. It is not comfortable for any of us, sir.

Mr. DAVIS OF VIRGINIA. Yes. Thank you.

Chairman WAXMAN. Mr. Murphy.

Mr. MURPHY. Thank you very much, Mr. Chairman.

I take some comfort today in what seems to be a growing bipartisan consensus around this idea that we need to have standards, we need to have some level of enforceability, and that both industry and Government have to be part of that solution. Because this seems to be, as Mr. Davis said, a very clear example in which the absence of that regulatory structure has led to some very damaging situations for families and a very uncomfortable situation for Government and its affiliated agencies.

And in a town in which there is a lot of derision thrown onto Government regulation, this seems to be a perfect example of an area in which there is a very appropriate role for the Government to step in, to make sure that we have the safety of residents, especially in a crisis area such as the Gulf, at the forefront of our discussions. For all of the aspersions that get cast on the regulatory structures the Government may impose, we have examples like this which suggest that there are still places in which we need to step up to the plate.

Mr. McGeehin, I just wanted to get back to the science for a moment. We have heard a lot of efforts on behalf of members of this committee and of some of the companies that produce these trailers to explain away the levels of formaldehyde. Understanding, as you have said, that there are lots of different explanations for why a real world trailer or home might have elevated levels of formaldehyde, what we do have is your study. I want to just get at some of these alternative explanations, to the extent that they were factored in to the work that you have done.

The chairman of Gulf Stream asserts in his written testimony that we have before us today that cooking fish, for instance, is a substantial source of formaldehyde in indoor air. I want to go through a couple of these potentially alternative explanations.

In the research that you have done on the trailers, have you come across any indication that the formaldehyde levels in these trailers were caused by abnormally high levels of cooked fish or other cooked products that would have been found in these trailers?

Mr. MCGEEHIN. No. For a number of reasons, we did ask the residents who participated in the study whether or not they had cooked in their trailer for a period of time prior to that, not only because the product that they are cooking could give off formaldehyde, but also the type of gas they use for cooking may, so we controlled for that and did not find that to be a factor in our analysis.

Mr. MURPHY. The president of Keystone RV states in his testimony that formaldehyde is "found in household cleaners, antiseptics, cosmetics, and medicines." Again, any indication in the trailers that you have tested that the high levels of formaldehyde are caused by cosmetics or household cleaners?

Mr. MCGEEHIN. No. We did ask about use of a number of different household cleaners and did not find that to be a factor.

Mr. MURPHY. Finally, there is a suggestion here that—again, I wanted to let you restate this—that mold and potentially backed-

up sewage can also lead to some levels of toxicity or high levels of formaldehyde. Any indication that in the trailers you tested that mold or sewage led to the high levels of formaldehyde?

Mr. MCGEEHIN. We measured mold in two different ways, through the walk-through with trained personnel, and also we asked the residents about mold, and mold was a factor in the multi-varied analysis that we did. I don't believe mold was the source of the formaldehyde. I think the quality of the air that leads to high formaldehyde levels also leads to mold.

Mr. MURPHY. Thank you very much, Doctor. I understand the nuance conversation here about the different factors that can contribute to high levels of formaldehyde, but we are dealing with science. We are dealing with studies that have been done by a trusted agency that have controlled for these very factors, and it is a legitimate conversation to have except for the fact that we have a study in front of us that shows us that we have unacceptable levels of formaldehyde, even controlling for many of these factors that have been brought before us.

I yield back the balance of my time.

Chairman WAXMAN. Thank you very much.

If the gentleman would permit me.

Mr. MURPHY. I would yield to the chairman.

Chairman WAXMAN. I do want to point out, because we have had several complaints that we haven't had Government witnesses here, we invited other Government witnesses. We invited FEMA. We have invited all the Government agencies that have been requested by Mr. Davis and other members of the committee. They did not agree to come here. But we did have a hearing on this subject with FEMA.

Mr. DAVIS OF VIRGINIA. Mr. Chairman.

Chairman WAXMAN. Yes.

Mr. DAVIS OF VIRGINIA. My understanding from FEMA and HUD is they didn't get the invitation until Thursday before the weekend to come here for this hearing, and that is why they declined. I still wish they could have been here. I think it would have added a lot, but I think it would have helped to have been able to get them all here at the same time.

Chairman WAXMAN. I don't disagree with you, except I do want to point out I think you are misinformed. They were invited at the same time that CDC was asked to come here, and we have CDC represented here, and FEMA refused to come. But we did hear from FEMA last time around, and what we heard from FEMA is they didn't want to know about the problem. They just didn't want anybody to do any evaluations because they were afraid they would find high levels.

If I can yield myself another 30 seconds of my own time that I reserved before, we heard the statement we ought to have Government and industry working together to protect the consumers. I think we have a good example here of Government and industry working together to hurt the consumers. Government didn't want to know the information. FEMA didn't want to know what levels of formaldehyde were in these trailers. And then we have Gulf Stream trailer manufacturers who don't feel any moral or other responsibility to let FEMA and the families know that they have

done tests on these trailers and they find high levels of formaldehyde, which they obviously knew were thought of as excessive and harmful to people's health.

So what we have is Government failure and industry failure. If we passed laws with standards, I think that is great, but what we have to make sure is that the representations that are made to the Government are about what is actually happening, and the Government asks the questions, and they work together to make sure the public is protected.

I think what we have seen here is no regulation and no self-regulation by the industry, as well.

I now want to yield to Mr. Burton 5 minutes.

Mr. DAVIS OF VIRGINIA. Would the gentleman yield me just 20 seconds?

Mr. BURTON. Yes.

Mr. DAVIS OF VIRGINIA. Let me just note again for the record I ask unanimous consent, this is a chart from our minority report, 98.8 percent of the temporary housing units tested by the CDC in Louisiana and Mississippi met the HUD ambient air targets for formaldehyde. One of the problems here is that target level is probably too high and it ought to be changed. But the customer in practically 99 percent of the cases met it, and there were inspections in some of the other instances.

So as we take a look at this, I think that we need to focus on what the Government did as the buyer. There was no direct selling between the trailer manufacturers and the end users; they sold to the Government, and the Government had bad standards in some cases. And in other cases, when the manufacturers went to the Government and said there was a problem, the Government said, let's not talk about it.

Thank you.

Chairman WAXMAN. If the gentleman might permit, that HUD standard is not an adequate standard. It is not even——

Mr. DAVIS OF VIRGINIA. I just made that point, Mr. Chairman. It is not an adequate standard, but why beat up on the customer.

Mr. BURTON. Reclaiming my time, Mr. Chairman.

Chairman WAXMAN. Mr. Burton, your time.

Mr. BURTON. Thank you.

I am not going to take very much time. I would like to have my whole statement presented for the record.

[The prepared statement of Hon. Dan Burton follows:]

OPENING STATEMENT OF REPRESENTATIVE DAN BURTON COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM HEARING ON MANUFACTURERS OF FEMA'S TRAILERS JULY 9, 2008

Mr. Chairman, I want to thank you for holding this hearing today as a follow-up to the Committee's hearing last July regarding reports of health problems associated with formaldehyde in emergency housing provided to victims of the Gulf Coast hurricanes by the Federal Emergency Management Agency (FEMA). That hearing, which I felt was very productive, appropriately focused on FEMA's response to complaints about formaldehyde

fumes from residents of trailers being used as emergency housing.

We heard a litany of complaints about FEMA's poor customer relations and its slow response to the concerns expressed by trailer occupants. And this Committee rightly took FEMA to task because there is simply no excuse for the kind of poor service many of the trailer occupants received from FEMA officials. Unfortunately, the Majority on this Committee also chose to spend time last July virtually maligning an entire industry without a single member of that industry being able to provide testimony at that hearing. That industry was the RV and travel trailers manufacturers – a large industry in my home state of Indiana.

I am please to see that the Committee is taking the time today to at least hear from industry experts. I strongly believe that it is important for this Committee to hear directly from the manufacturers who produced the trailers FEMA supplied to displaced residents of the Gulf Coast and from experts who are familiar with formaldehyde. I also welcome Dr. Michael McGeehin, Director of Environmental Hazards and Health Effects, National Center for Environmental Health at the Centers for Disease Control and Prevention.

FEMA provided over 120, 000 mobile homes and travel trailers to Hurricane victims throughout the Gulf Coast area. It was the

largest emergency housing mission in U.S. history. Using travel trailers was the only option available to FEMA in the midst of the largest natural disaster in American history; and when called upon for assistance, the travel trailer industry stepped up and met the need. According to FEMA, the temporary homes were produced by 14 manufactures. Five of these firms – Gulf Stream Coach, Forest River, Fleetwood, Keystone RV, and Pilgrim International accounted for roughly 60% of the units acquired by FEMA.

Allegations have been made that the FEMA trailers were made with low quality materials and that manufactures cut corners to reap bigger profits. To date, I have not been presented with

any evidence that trailer manufacturers veered away from their internal quality controls or bypassed industry standards in producing trailers for FEMA. The RV and travel trailer industry has been providing safe products to millions of Americans for years. Today, it is estimated that nearly 8 million American families enjoy using RVs for travel and recreation annually; with no adverse health affects.

It is no secret that formaldehyde is used in the manufacturing of many products. It is used to make plywood and particleboard; it is commonly found in flooring, paneling, cabinetry, furniture and other products. It is also used to treat permanent – and durable-press fabrics. Formaldehyde is part of the normal processing and/or manufacturing of a number of

everyday products. Its use is not unique to travel trailer manufacturers. In fact, I am certain that many of the materials used in the construction of this Committee's hearing room probably contain formaldehyde.

I believe it is important for this Committee to have a better understanding of formaldehyde levels in travel trailers, and the industry's practices, protocols, and quality standards. I am particularly interested to learn about the Recreational Vehicle Industry Association's (RVIA) proactive efforts to limit formaldehyde emissions in its products. I understand, for example, that RVIA members voluntarily adopted the Department of Housing and Urban Development's stringent standards for

formaldehyde emission from wood products used in manufactured housing – housing designed for long-term living unlike a travel trailer which is meant for short-term periodic occupancy.

FEMA documented over 200 complaints from trailer occupants of strange odors and vapors allegedly associated with formaldehyde. I believe their complaints and experiences were very real and that FEMA should have addressed them in a timely and appropriate manner. As long as there are people living in these FEMA trailers, the Federal government has an obligation to monitor the situation in a respectful and responsible way. If there are potential health hazards associated with exposure to

formaldehyde then we need to deal with this problem. However, in the absence of specific regulatory standards for formaldehyde exposure in travel trailers and RVs, this problem, in my opinion, is not the fault of the RV industry.

Again, Mr. Chairman, thank you for holding this hearing and I look forward to hearing from our witnesses.

Mr. BURTON. I have been familiar with the travel trailer and trailer industry since I was a kid, and I haven't seen any evidence that they have violated any rules and haven't done their job to perfection. There are over 8 million people in this country that live in mobile homes and RVs and travel around the country with no problems with the formaldehyde issue we are talking about today, and so instead of beating on the manufacturers I think we ought to give them a little vote of confidence because they have such a good track record in the past.

With that I yield to my colleague, Mr. Souder from Indiana.

Mr. SOUDER. I thank my friend from Indiana.

While there may be differences of opinion, I really am deeply concerned about the use of the word moral to apply to people who worked overtime to provide units to people who were in housing crisis. They may have worked their people hard. They did it under great pressure. We had tremendous hiring challenges in Indiana, training challenges, but they worked overtime to try to meet the standards at half the cost of a normal unit. I believe the chairman was more referring to a question, and I think that as we try to make sure that people live in safe homes and that people work in safe plants, this debate is not about emotional rhetoric, it is, in fact, about science.

One of the core fundamentals that is being tossed around here is whether Gulf Stream's test constitutes science. It was a flash test with a desiccator method, which is not the way that you test.

Now, should FEMA have responded to then do scientific tests? We can't pretend and keep asking Dr. McGeehin how he would have reacted to something that was a flash warning test like you do with the formaldehyde test or that type of thing. We are making big judgments here on the morals of people based on the fact that one company did have concerns with a shipment of wood, then did a flash test on that, did say a range but didn't give all of it because the variation is far too great to be scientific with the method that they used.

Now, I also want to make sure that when Mr. Murphy asked some questions, that it isn't really scientific to say, when he asked did you test, to say the individuals were asked, because, in fact, you didn't test to see whether other things caused the standards, you asked them whether they did anything.

Mr. MCGEEHIN. I think I stated that we did it with a questionnaire and that we controlled for it in the analysis. I think I exactly said those words.

Mr. SOUDER. It shouldn't be taken here that there was a test done on other things. That was a self-dependent referral rather than an actual scientific test to see what else was there.

We come back to this Tulane study that said the ambient air study in Baton Rouge was 390 parts per billion. That was the average, which means they had four times what you were finding in these trailers average. Would you recommend that 390 average, which means probably some of them were in the 500–600 range, that everybody who lives in that region should move out?

Mr. MCGEEHIN. I would recommend exactly what the authors of that recommended.

Mr. SOUDER. Which is?

Mr. MCGEEHIN. People should look to ventilate their houses more, that they should look at what component parts they are putting in and what additional work they are having done on their house.

Mr. SOUDER. And that is then your recommendation for the trailers, as well, not panic?

Mr. MCGEEHIN. I am sorry, sir. I didn't hear that.

Mr. SOUDER. In other words, if they are averaging 390 in Louisiana in a general site-built house, which is higher than the average here, would you make the same recommendations for emergency FEMA trailers that you just made to Baton Rouge? Why are we having a double standard on this group and not basically the same level of concern about possibly the entire southern region there.

Mr. MCGEEHIN. Congressman, we did make that recommendation. We recommended that FEMA move the people out of these units before the weather became hot and the levels went back up. In the meantime, we did recommend that people ventilate their trailers more, be careful, do not smoke inside their trailers——

Mr. SOUDER. Taking back my time, did you recommend the same thing to the people in Baton Rouge?

Mr. MCGEEHIN. Sir, we didn't do that——

Ms. SOUDER. It's 390.

Mr. MCGEEHIN [continuing]. Study, sir.

Mr. SOUDER. OK. You already testified you felt it was an accurate study. The question is why would you make a recommendation to one group and not the other?

Mr. MCGEEHIN. Sir, that was a study that was done 9 years ago that was given to me 2 days ago. I can't go back and recommend to the citizens who are in those homes that they move out. I mean, that is not what we do. This is a study that I was asked what did I think about this study, and I gave you that assessment.

Chairman WAXMAN. The gentleman's time is expired.

Now Mr. Sarbanes.

Mr. SARBANES. Thank you, Mr. Chairman.

You may have covered this. I apologize if you have. But when you do a test to determine if the standard is being satisfied whether a trailer is safe or not safe, do you do it with the windows closed? Do you do it with the windows open? Do you do it with the fan running?

Mr. MCGEEHIN. For our occupied study what we wanted was for people to set their trailers up the way they normally have their trailers when they are sleeping, so we asked them to set it up, and if they keep their windows open 3 inches, if they keep their windows wide open, if they keep the air conditioning running, however they set their trailers up for that period of time, that is how we asked them to set their trailers up and that is how we sampled. We wanted it to be the most realistic exposure that we could.

Mr. SARBANES. But that would mean you would sort of end up on a trailer-by-trailer basis coming up with what——

Mr. MCGEEHIN. We were interested in what the human beings were being exposed to for formaldehyde.

Mr. SARBANES. OK. The second question I have is in terms of sustained exposure, so day after day after day. In somebody who is exposed to, let's say, 250 parts per billion for 50 days in a row

at a higher risk of some kind of harm than somebody who is exposed to 250 parts per billion for 10 days in a row and then are not exposed to that subsequent?

Mr. MCGEEHIN. Essentially what you are doing when you look at human exposure to any contaminant is, in one way or another, you are basing it on an index, and the index is based on the intensity of the exposure—in this case, the level of formaldehyde that you are mentioning—and the duration of exposure, how long they are exposed. When you are dealing with contaminants, I think the rule of thumb is to try to decrease either of those components as much as you can. Either decrease the intensity by decreasing the amount of exposure that they have to formaldehyde, and/or decrease the duration of exposure.

You don't want people being exposed to a contaminant that causes symptoms, and the more you can decrease either one of those you decrease the exposure index.

Mr. SARBANES. So there is a cumulative dimension of potential harm that can come?

Mr. MCGEEHIN. Particularly when you get into the carcinogenic potential of formaldehyde. Formaldehyde by the International Agency for Research on Cancer [IARC], is considered a human carcinogen, and when you have human carcinogens you really want to try to decrease the person's exposure as much as possible.

Mr. SARBANES. All right. So it becomes relevant the use for which a trailer is being put?

Mr. MCGEEHIN. Well, we absolutely believe that.

Mr. SARBANES. Yes.

Mr. MCGEEHIN. One of the recommendations when we were talking to FEMA is that, while you don't want to get into a specific number when people are living in a unit, one of the issues is how is that unit being used. If you have a family with young children and they are in the unit 24 hours a day, as some of the families in the parks were, that is different than a person who has a unit parked outside their home who spends 8 hours at work and then comes home and spends 4½ hours repairing the roof to try to move back into their home. So the use of the trailer is an important part of the level of exposure.

Mr. SARBANES. You know, people keep referring to the emergency circumstances as an excuse/explanation for folks being put in harm's way where there were these high formaldehyde levels. But, leaving that aside for a minute, would you agree that if the alarm had been sounded earlier and more consistently by both the manufacturers and FEMA, that we would have gotten started much earlier on doing the kind of thinking you say you have been doing about how we can fix this problem going forward and think about the kinds of housing that should be available to people in these disaster recovery situations?

Mr. MCGEEHIN. I think it is fairly easy to imagine the time line that we currently have being moved up.

Mr. SARBANES. Yes.

Mr. MCGEEHIN. And then moving everything up whatever number of months that may have been.

Mr. SARBANES. I mean, I am running out of time, but FEMA has only just recently come up with a national disaster housing plan.

Actually, it is just a preliminary blueprint, I guess, and Congress called for it 2 years ago. That would have included and should have recommendations on creating different kinds of inventory of housing inventories in these disaster situations. We could have gotten started much earlier on that if people had come clean earlier with the information on these kinds of exposures.

I yield back my time.

Chairman WAXMAN. Thank you, Mr. Sarbanes.

Mr. Shays.

Mr. SHAYS. Thank you.

I will first yield to my ranking member, and then I will take the rest of the time.

Mr. DAVIS OF VIRGINIA. Mr. Chairman, we had talked about notification. I have letters from you to Steve Preston, the Secretary of HUD; Steve Johnson, the Administrator of EPA; John Howard from OSHA; Ed Faulk from OSHA; and Nancy Nord from the U.S. Consumer Product Safety Commission July 3rd—that is last Thursday—inviting them to come to testify before the committee.

I understand there was a letter slightly earlier than that to FEMA, but they told us they didn't get it until Thursday. The manufacturers have been on the hook here for a month, have known that they were coming here.

So this isn't trying to get everybody together at one table to discuss this. This was almost an afterthought, and as a result of that we have an incomplete hearing.

This was a tragedy what happened here to some of the families that had these high levels. It shouldn't happen. It shouldn't have happened. It should never happen again. And we ought to focus on what we can do. But the Government bears the prime responsibility here for not appropriate inspections, not reacting to what some of the manufacturers had told them early on that there were problems, not going through proper inspections, even with a moving and very uncertain standard.

So that is the difficulty here. When you have lawsuits outstanding against some of these companies, we know how this works. We are all adults. You are going to have lawyers put in testimony from some of the Members of Congress and some of the staff reports into the record before juries to try to get high awards, and so they are trying this. We have seen this happen before, unfortunately. We understand the politics of that, but that is so unfortunate here about not having the Government here and working toward a solution instead of trying to frame a lawsuit. That is my major concern with this.

What happened was a tragedy. It shouldn't happen again.

Thank you, Mr. Shays.

Mr. SHAYS. Happy to yield.

First, Doctor, thank you for coming. Thank you for your good work. This is a very important issue, and we appreciate your expertise and talents.

I would like to ask about what happens in the future. FEMA has specified a new procurement specification of 16 parts per billion regarding formaldehyde in FEMA trailers. First, do you think this new procurement number of 16 parts per billion is reasonable?

Mr. MCGEEHIN. We weren't asked, Congressman, to comment on that before FEMA came out with that. I know on which that is based, which is based on a NIOSH standard that was based on formaldehyde being considered a carcinogen, and at that point 16 parts per billion I believe was the lowest level that could be detected by the analysis of air sampling at that time. I think 16 parts per billion across the board for temporary housing is going to be a difficult mark to make.

Mr. SHAYS. Thank you.

Let me ask you, in your interim report figure two depicts 100 parts per billion of formaldehyde as an intermediate range and 1,000 parts per billion as a higher range. Does CDC still stand by the figure? In light of the mean result from the CDC trailer study being 77 parts per billion, wouldn't it be inappropriate and misleading to classify trailer formaldehyde levels as high?

Mr. MCGEEHIN. What we tried to do with that was have a sliding scale so that people understood that it wasn't just a one-time measurement of formaldehyde that determined whether or not an environment was safe and healthy or not, that there were other factors involved. What CDC has done from the beginning of this is to look at the literature and to go by what the literature says, that levels of formaldehyde in an indoor environment may cause symptoms, and at those levels that is how we basically have approached this problem.

Mr. SHAYS. Right. But in your interim report it is basically 100 to 1,000, but 100 being kind of the low range, which is still higher than the 77 parts per billion. So do you need to adjust that number down of 100?

Mr. MCGEEHIN. No. I think that was done by the graphics people because it made some sense to have 100 and 1,000. If you are looking at the colored version of that you will see a gradation in that between 100 and 1,000 where various symptoms occur. I don't think we need to adjust that particular graphic, because we have been consistent in what we have said from the very beginning that at 100 parts per billion sensitive individuals show symptoms. There are a number of studies that show 300 parts per billion, and at 100 parts per billion there are a number of agencies—WHO, EPA, ASHRAY—that talk about that as the level that action should be taken. So I am very comfortable at the 100. If you are concerned about the 1,000——

Mr. SHAYS. No, I am not concerned; I am just making the point. I think you have answered it. The 100 to 1,000 is an illustration, but 1,000 is pretty low, and there are some symptoms that show at that point.

Mr. MCGEEHIN. You mean 100.

Mr. SHAYS. It does suggest that it is certainly higher than 16 or 77.

Mr. MCGEEHIN. Right. The 77 was the geometric mean that we found across the board. I think what you need to do when you look at that study is that you also have to look that for some manufacturers 56 percent of theirs were above 100.

Mr. SHAYS. OK.

Chairman WAXMAN. The gentleman's time has expired.

Ms. Watson.

Ms. WATSON. Thank you, Mr. Chairman, and I want to thank Dr. McGeehin.

I would like to ask you about a CDC study where you worked with the Lawrence Berkeley National Laboratory. As I understand it, you actually deconstructed four travel trailers that were purchased by FEMA, and these trailers were taken apart so you could test the emission level of volatile organic chemicals from the component parts of the trailers. These tests showed that formaldehyde was being emitted inside the travel trailers from the component parts; is that right?

Mr. MCGEEHIN. Yes, ma'am.

Ms. WATSON. Yes. They also show that formaldehyde was the only volatile chemical in the travel trailers that was at a level high enough to negatively impact human health; is that correct?

Mr. MCGEEHIN. Yes, ma'am.

Ms. WATSON. Yes. Were you aware that the Gulf Stream also conducted the test of its component parts 2 years ago?

Mr. MCGEEHIN. No, I was not.

Ms. WATSON. OK. Based on documents that were obtained by this committee, it appears that they did, and the company actually hired another company called Progressive Engineering to test individual samples of the paneling, and Gulf Stream, itself, appeared to have tested the fiber board, vinyl, and the drawers to determine their formaldehyde levels. That sounds similar to the tests that you conducted; is that so?

Mr. MCGEEHIN. Yes, it does, depending on what type of chamber testing they did, but yes, it does.

Ms. WATSON. Yes. Let me tell you what this company found as a result of its testing. Progressive Engineering found elevated levels of formaldehyde emitting from the paneling, and if we were reading Gulf Stream's notes correctly, they found high levels from the other components, as well.

If you had been informed of this information 2 years ago, would it have raised concerns for you?

Mr. MCGEEHIN. Well, again, I will go back to what I have reiterated. Yes, ma'am, any information that shows levels of formaldehyde at levels that can cause symptoms would have been of concern to us.

Ms. WATSON. I know some of this is redundant, but I am trying to move forward.

Mr. MCGEEHIN. No, that is fine. That is fine. I understand.

Ms. WATSON. Would it have been beneficial for FEMA or CDC to have this information when it began investigating these issues? I have heard you say earlier that if we had that information we could have moved on it, correct?

Mr. MCGEEHIN. I think any information early on would have been of great benefit.

Ms. WATSON. OK. So the problem is that the company did not tell FEMA about these component tests, and Gulf Stream had a contract with FEMA that was worth $550 million to manufacture these travel trailers. When it learned in 2006 that there was a formaldehyde problem with the trailers it manufactured, the company chose to remain silent. And so FEMA has been rightly criticized for its response to Hurricane Katrina and its response to the

formaldehyde problem, but it should not bear all the blame, so we need to be talking to each other openly, honestly, in a transparent way. That is the reason why we have these Oversight Committee hearings, so a tragedy like this and our response will not have been as flawed as it was.

Mr. Chairman, I will yield back my time, but I wanted to make that point.

Thank you, Doctor.

Mr. MCGEEHIN. Can I ask a question?

Chairman WAXMAN. Go ahead.

Mr. MCGEEHIN. If those data are available, we would love to see them, because one of the things that we want to do in followup to the work that we just did with Lawrence Berkeley is to try to get some of the original component parts and see what they off-gas and see if we can model to see what happened over the 2-year period.

Ms. WATSON. Mr. Chairman, through the Chair if we can ask staff to provide the Doctor with that information.

Chairman WAXMAN. We will certainly try to make that available to you.

Ms. WATSON. Great.

Chairman WAXMAN. I think it is a reasonable request, and I would assume the manufacturers would agree with that.

Mr. MCGEEHIN. OK. Thank you.

Ms. WATSON. Thank you. I yield back.

Chairman WAXMAN. Mr. Souder, you have not taken your 5 minutes. Do you want to proceed now?

Mr. SOUDER. OK. I thank the Chair.

I think it is really important, because I know that you get questions directed at you, and some of these you weren't familiar with, that the Gulf Stream test was a desiccator test, not a chamber test. There was no chamber test done, which your agency says has to be done multiple times. They hired a firm to try to do this test, because they suspected that the wood may have a problem. They tried to alert FEMA. They told them a general range because it is not scientific.

Mr. MCGEEHIN. Yes.

Mr. SOUDER. You used the word chamber. Do you agree that chamber testing is the way to do scientific testing?

Mr. MCGEEHIN. That would be the gold standard for this.

Mr. SOUDER. And would you agree that the other is probably not even a bronze, particularly if you just do it once and you flash test, because number of people, what may be happening that day? You said yourself 100 to 1,000 because there may be temporary things occurring.

Mr. MCGEEHIN. Well, sir, I don't know whether or not it has been compared to the standard, but if there were data that showed whatever testing they did was compared to the standard, then we could make that assessment.

Mr. SOUDER. Right. In other words, we don't have that assessment?

Mr. MCGEEHIN. I certainly don't.

Mr. SOUDER. Well, they didn't either, because they didn't do chamber testing.

Mr. MCGEEHIN. Right.

Mr. SOUDER. All they were really alerting FEMA to is hey, there may be some problem. Now, Lawrence Berkeley Labs said this: as containing high levels of formaldehyde probably resulted from cheap wood used by the manufacturers under permissive Government standards. Do you think, from you own testing, that the variations—because most of them fell here—were resulting from probably a certain type of wood, or are you willing to agree with how Lawrence Berkeley is probably the best we can come up with there?

Mr. MCGEEHIN. I think the Lawrence Berkeley report is the best data that we have on the component parts used.

Mr. SOUDER. So, while there may be other variables, to the degree we had a problem there, it appears to have been aggravated, at least, by the wood.

Mr. MCGEEHIN. Yes.

Mr. SOUDER. You used a very understated term. You said it would probably be pretty hard to achieve a 16 level?

Mr. MCGEEHIN. Right.

Mr. SOUDER. That is probably true, since the average rooms that have been tested here, not in chamber tests, are between 30 and 70, which means that we had better not put anybody in our House office buildings in an emergency, so probably saying 16 is a pretty under-stated statement. I appreciate you pointing that out.

I want to come back, because the Hancock study and the Tulane study were not by you. Well, the Mississippi one was. You explained the difficulties with that, because we have been going back and forth here today between chamber tests, non-chamber tests, different agencies, using something from a flash test that is nowhere near a gold standard that was used in quoting some high figure, and we go back and forth between ambient air and testing of the wood. We go back and forth between ones that people are living in and ones that have been packaged up with no ventilation, some new, some old. We don't have the VIN numbers. The agencies don't appear to have those numbers to be able to match up. It appears that the numbers didn't even match up right in some of the cases with the manufacturers, that there are significant problems.

Now, I want to come back because in Hancock, where it tested ambient air, with the limitations, there wasn't a difference between the trailers and the housing. And in the Tulane study, which is NIOSH and what you said was gold standard, the average was 390, where the average on these trailers was 77 or 87.

Now, to come back to this, it is not your agency and you didn't do that study. You only reviewed it 2 days ago. But if we are panicked about what we keep hearing of 400, 200 could be exposure, 100 could be, wouldn't that be suggesting that CDC and others ought to be checking everything in the State of Louisiana and elsewhere since they are four times the average standard of these trailers? The average is four times higher. Why isn't there panic about the whole region if we are panicking about 100 and 200?

Mr. MCGEEHIN. Well, sir, there must be something unique about the houses that were tested in that study. Ambient air is not a driver for formaldehyde in indoor air.

Mr. SOUDER. Let me ask the question. Do you have any scientific evidence that there was anything unusual about their test?

Mr. MCGEEHIN. No. I think the testing process that they used, according to the article that I read, was fine.

Mr. SOUDER. Then your answer was not scientific in saying it must be something else, because, in fact, they were site-built homes; that, in fact, we could have a problem with all site-build homes. You don't know the answer to the question.

Mr. MCGEEHIN. Except that I am familiar with formaldehyde, sir, and outdoor air is not a driver for indoor formaldehyde.

Mr. SOUDER. Well, their test didn't suggest it was.

Mr. MCGEEHIN. But if you read their conclusion, sir, they are not suggesting that it is ambient air, either. They are suggesting that it is some product inside, either a ventilation issue or the products that are used inside the home.

Mr. SOUDER. Which is the same question that we have here——

Mr. MCGEEHIN. Absolutely.

Mr. SOUDER [continuing]. With these trailers.

Mr. MCGEEHIN. Absolutely.

Mr. SOUDER. My point isn't that the ambient air—I am sorry if I confused the ambient air, because that was questioned a little more potentially over in Hancock—that the question is that if they got these results that are four times higher, which could be the wood, which could be the ventilation, why aren't we concerned and looking at those houses like we are concerned about these houses, because it might not just be the poor people here; it may be the poor people all over that zone, and it may be the poor people in other types of homes, because we are, in my opinion, picking on one industry without really having a balance.

Chairman WAXMAN. The gentleman's time is expired.

Mr. SOUDER. Thanks, Mr. Chairman.

Chairman WAXMAN. Was that a question? Did you have a response to that?

Mr. MCGEEHIN. I want everybody on the panel to know that CDC and I are not picking on an industry at all. I mean, we have had good conversations with the RVIA and other industry. They have attended our Scientific Oversight Panel meetings twice. I think that our people have gone out to their factories to see how they operate.

From our standpoint, there is no industry bashing going on with CDC in any way, shape, or form. I simply state, as I stated before, that we are trying to get the answers for this, we are trying to provide good data.

I, quite frankly, think that the LBNL study that we just completed and just published should be something that industry jumps on and looks at very carefully, because I think it gives a lot of guidance as to what the problems might be and how they might be solved.

I just want to make that statement.

Chairman WAXMAN. I think that is an excellent point.

The gentleman's time has expired.

Mr. Tierney.

Mr. TIERNEY. No questions.

Chairman WAXMAN. Would the gentleman yield me some of his time?

Mr. TIERNEY. I certainly yield to the chairman.

Chairman WAXMAN. I want to point out the situation, because we have heard complaints about some other witnesses from other agencies not being here. The manufacturers were invited, because this is a hearing about the manufacturers, on June 4, 2008. On July 1st, our staffs, bipartisan staffs, heard from CDC because CDC was doing a study about formaldehyde levels as a result of our first hearing with FEMA over a year ago. As a result of our hearing where we questioned why FEMA didn't do anything about this problem, FEMA said, oh, we are going to ask CDC to do an evaluation. So CDC was ready to report its evaluation and to release it on July 2nd.

So when our staffs talked to—I don't know if it was you, Dr. McGeehin.

Mr. MCGEEHIN. It was.

Chairman WAXMAN. I guess it was—and heard what the report was, Republican staff said, Well, let's invite FEMA back, as well as CDC. So we sent an official invitation to FEMA and to CDC on July 1st. This was an official invitation to come.

Some time later in the week, the minority then said, well, wait a second. We ought to have HUD, as well, to come in and talk about these standards, in order to get all the relevant witnesses regarding standards. Well, our staff replied, this isn't a hearing about standards; this is a hearing about whether the manufacturers had information that they should have shared with the Government, FEMA, and whether they should have shared it with the people living in the trailers.

But, nevertheless, we sent an invitation to HUD, NIOSH, EPA, CPSC, and OSHA on July 3rd. Now, that is awfully late, and they said they weren't available to come. FEMA said they couldn't come at all because they were busy with the emergencies that are going on.

I want to make that point very clearly and yield to Mr. Davis if he wants to add anything further.

Mr. DAVIS OF VIRGINIA. Thank you, Mr. Chairman.

First of all, let me just note the CDC report was final, I think, July 2nd, but we had information July 1st, but that was the final report. The interim report was in February, as I understand, and there wasn't a substantial change, was there, between the two?

Mr. MCGEEHIN. No.

Mr. DAVIS OF VIRGINIA. So this has been common knowledge. We have had plenty of time to plan for this.

Second, I mean, the difficulty here is when a contractor responds to standards from the Government and doesn't meet those standards they ought to be held accountable, because we have standards, we know. in this case we didn't have standards. You had conflicting standards throughout Government over what, where, and ambient air standards between HUD and EPA and everybody else.

Chairman WAXMAN. But if I could reclaim my time, that is an odd issue to raise. It is confusing, because we have so many different standards, but when we have different standards we can look and see. Well, does that make sense to have the standards we have? But what we are concerned about is the health and well-being of people living in these trailers, and the Centers for Disease Control, which has not established standards, is giving us their

professional judgment about when it is a risk for people living in those trailers.

Even if we took the report from the manufacturers of over 100 parts per billion, CDC, Dr. McGeehin, has testified over and over again that he thinks that is an awfully high amount of formaldehyde for people to be living with.

Now, HUD has a different standard, and it is a different number that people can live with more formaldehyde than what Dr. McGeehin is pointing out. We have heard complaints that the manufacturer's study wasn't adequate, it wasn't done professionally, it as only a flash study. I don't know. We will go into that with the next panel. But what they knew from their evaluation, however complete it was, is that there was a problem going on; that they were getting very high ratings of formaldehyde in these trailers. Knowing that, they mislead—I believe actually mislead—FEMA when they said, "We are not getting complaints," when, in fact, they were, and we have done some studies, but the impression was it is not a big problem but we will share our studies with you. So they had some sense that maybe FEMA wasn't going to ask, and they would share it, I presume, if they were asked, but FEMA didn't ask, which is not a good point for FEMA, and the trailer manufacturer didn't share the information but seemed to say we have some studies but we haven't had any complaints.

If what they knew is that it was more than 100 parts per billion, and they knew it was way in excess of that, they should have had some suspicious—in fact, I believe they had some suspicions that people were at risk.

Mr. DAVIS OF VIRGINIA. Mr. Chairman, in the next panel the companies can take care of themselves, and we ought to ask those questions there, but there is also ample evidence that in many of these cases they passed on this information to FEMA and FEMA either ignored it or didn't want to address the situation.

As I noted before, almost 99 percent of the temporary units that were tested by the CDC in Louisiana and Mississippi met the HUD ambient air targets for formaldehyde standards. And these standards I think were bad standards and we ought to focus on changing these standards.

Chairman WAXMAN. What kind of an argument is that to make that the manufacturers knew they met a standard that wasn't a good standard, and therefore it was OK for them not to share the information? I don't believe they shared the information with FEMA. They invited FEMA to ask them further information. FEMA never asked.

Mr. DAVIS OF VIRGINIA. Well, we can settle that with the next panel, but if you are holding contractors to some moving standard, I don't think you will ever get anybody to do business with the Government again. That is the difficulty.

Chairman WAXMAN. Whether this is a standard or not, I think a manufacturer of a product has a responsibility not to harm the people using the product.

Mr. DAVIS OF VIRGINIA. We all agree with that. There is no question about that. But the question here is, if you are meeting a standard and it is the wrong standard, is that the Government's fault for setting the wrong standard or is it the contractors' prob-

lem for meeting a standard? I think we can have that argument, but you seem to want to put ex post facto standards into account, and I don't think that is appropriate.

Chairman WAXMAN. There was no standard. We can all agree to that. There was no standard for them to meet.

Mr. DAVIS OF VIRGINIA. Well, there was a HUD standard, and they met it 99 percent of the time. But we can have this discussion with the next panel. It is not my intention to defend anybody.

Chairman WAXMAN. They have test results over 2,000 and 4,000 parts per billion, which is over and above any of the standards, all of the standards. It is worse than any of the——

Mr. DAVIS OF VIRGINIA. Mr. Chairman, there was no finding of any delivered trailer that had anything close to that, as Dr. McGeehin has testified. The highest standards they had is I think you had a couple over 500.

Chairman WAXMAN. I am talking about what the manufacturers reported.

Mr. DAVIS OF VIRGINIA. I am talking about what they delivered to the Government. That is what we are talking about, not what they found in reports.

Chairman WAXMAN. Well, Mr. Tierney's time has expired and it is now Mr. Clay's opportunity to pursue questions.

Mr. CLAY. I am so glad I have some time left, Mr. Chairman. Thank you. Last winter CDC tested levels of formaldehyde in a group of randomly selected travel trailers and mobile homes. CDC finalized its report on these testing results just last week.

Doctor, CDC found that trailers manufactured by Forest River, Gulf Stream, Keystone, and Pilgrim all had elevated levels of formaldehyde; is that right?

Mr. MCGEEHIN. Yes, sir.

Mr. CLAY. The CDC study states that formaldehyde levels tend to be higher in newly constructed trailers and during warmer weather; is that correct?

Mr. MCGEEHIN. Yes, sir. That is pretty well accepted.

Mr. CLAY. So, in your expert opinion, would the elevated levels that CDC discovered in the winter of 2007 been even higher 2 years ago in 2005?

Mr. MCGEEHIN. Yes, sir.

Mr. CLAY. And, in your expert opinion, would the formaldehyde levels that CDC discovered in the winter of 2007 have been even higher during the summer?

Mr. MCGEEHIN. Temperature and humidity are direct drivers of formaldehyde levels, so I would say yes, sir.

Mr. CLAY. The CDC study provides us with a spapshot of what families were exposed to last winter, but when we account for the passage of time and temperature fluctuations, these families were likely exposed to even higher levels of formaldehyde than indicated in your report; is that correct?

Mr. MCGEEHIN. Yes, sir. That is in our report.

Mr. CLAY. It is in your report?

Mr. MCGEEHIN. Yes, sir. That exact language is in our report.

Mr. CLAY. You know, what is so troubling about the decision by Gulf Stream not to inform the residents of its testing more than 2 years ago is the fact that no one was made aware who lived in

these trailers and mobile homes. Gulf Stream found that every trailer it tested had formaldehyde levels higher than 100 parts per billion and found that some had as high as 500 parts per billion. We all know that FEMA failed miserably in the wake of Hurricanes Katrina and Rita. But these poor hurricane victims have now been subjected to a second disaster and years of unnecessary and harmful exposure to a known carcinogen.

Do you think they should have been notified a little sooner?

Mr. MCGEEHIN. Again, sir, I will say what I said in the beginning, that as much information as could be given to residents about effects that might be harmful to them is a good thing. I mean, we believe in disseminating that sort of information. I am not commenting on any of the results that we are talking about because I haven't seen the testing methodology, but your question is that sort of knowledge is a good thing for people to have, yes.

Mr. CLAY. Is there a difference in a family taking a weekend trip in one of these homes or camping out in the homes as compared to someone living in the homes for over a year?

Mr. MCGEEHIN. Dramatically different. Yes, sir.

Mr. CLAY. Dramatically different. And have you documented any of that?

Mr. MCGEEHIN. No, but, again, when we go back to you are looking at exposure to environmental contaminants, which I have done for the last 25 years, you are looking at two basic things: the intensity of exposure and the duration of exposure. These units weren't designed or built for people to live in for 2½ years. And somebody going with their fly rods with their children up to fish for a weekend, obviously your duration of exposure is much less, and also most of the time those people are spending outside of the unit. They are outside. They are hiking. They are camping.

If we are talking about these units being used on large lots where people who are living with their children 24 hours a day, both the intensity and duration of exposure is high.

Mr. CLAY. Thank you for your response.

Mr. Chairman, I yield back.

Mr. ISSA. Would the gentleman yield?

Mr. CLAY. I yield to the gentleman from California.

Mr. ISSA. Just for full disclosure, since you said it would be good for us to know, and I think you are right, I want to reiterate that in the room we are in right now we are at 80 parts per billion based on measuring with your gold standard meter, so please be aware that you are breathing at that level, and if you need to leave let us know if anyone needs to leave early.

Mr. MCGEEHIN. What sampling methodology was that?

Mr. ISSA. I don't know what sampling methodology. That was a direct read instrument.

Chairman WAXMAN. What is the sampling methodology that we are being told——

Mr. ISSA. It was the same methodology as Gulf Stream, and that was the reason that our staff did it and got the 40 to 80, depending upon what part of the Capitol you are in. I just wanted everyone to be aware that we could be off plus or minus 19 percent, but we do want people to know that this carpet apparently, along with anything else that has been put in this over the years, that it

emits. We apparently are well beyond the 16. I think full disclosure, you are absolutely right.

Mr. DAVIS OF VIRGINIA. Mr. Chairman, people in the anteroom will be relieved they are not here in the main room.

Chairman WAXMAN. The gentleman's time has expired.

All members of the committee have asked questions, and Mr. Donnelly is with us, and I want to give him any opportunity he wishes to take at this point.

Mr. DONNELLY. I want to thank the chairman for letting me be present today. I will submit a written statement for the record. I want to thank the ranking member, as well.

I guess I want to thank the chairman also for inviting FEMA. I think FEMA's absence here to explain their standards and their actions, that they really have eliminated a part of the answer here. I wish that they were, in fact, present.

Dr. McGeehin, what I want to ask you is, when you did your testing for the trailers, did you do any comparison tests by taking trailers off the lots from places here in Maryland or Virginia that were built in regular production?

Mr. MCGEEHIN. It depends on which you are talking about. The occupied trailer study had parts of trailers in it that were off the lot, and the Lawrence Berkeley National Labs had two spec trailers and two off-the-lot trailers.

Mr. DONNELLY. Ones that were just being sold at, like, Maryland Trailer Sales, or nothing special that was built for FEMA, but, in fact, was regular production?

Mr. MCGEEHIN. Off-the-lot trailers. That is my understanding.

Mr. DONNELLY. Did you test those?

Mr. MCGEEHIN. We did. They were part of both studies.

Mr. DONNELLY. Did you find any difference between off-the-lot trailers and trailers that were designed for FEMA?

Mr. MCGEEHIN. Well, I want to be cautious in this. We did a study with Lawrence Berkeley that only had four trailers, and so therefore I don't want to make any generalizations from this. We did look at the two spec trailers and the two off-the-lot trailers, and the two spec trailers on the whole unit levels of formaldehyde were higher, and the two off-the-lot trailers were lower, but this study was not designed to look at that difference and I don't want that generalized because that would be a mistake and it would be taking the science beyond what it was designed to be.

Mr. DONNELLY. Did you know of any different production standards for——

Mr. MCGEEHIN. I don't know that.

Mr. DONNELLY [continuing]. Trailers that were used for families in Louisiana or Mississippi or trailers that were simply shipped to dealers who have been dealers for years of these companies?

Mr. MCGEEHIN. I have no knowledge about any separate manufacturing process for the spec trailers versus the off-the-lot. I don't know anything about that.

Mr. DONNELLY. Let me ask you this: 44 components were tested.

Mr. MCGEEHIN. Forty-five.

Mr. DONNELLY. Forty-five. Forty-four met all HUD standards?

Mr. MCGEEHIN. Right.

Mr. DONNELLY. OK. And did FEMA provide, as far as you know, any standards to these companies in regards to formaldehyde to follow?

Mr. MCGEEHIN. It seems that everybody on the committee is more familiar with the correspondence between FEMA and the manufacturers than I am, so I really can't answer that. I am not aware of that, and you are all probably more aware of it than I.

Mr. DONNELLY. So you don't know of any standards that were violated in any way in regards to formaldehyde?

Mr. MCGEEHIN. I can't really comment on that. I don't know of anything about that at all.

Mr. DONNELLY. Let me ask you this: in regards to the Tulane study, do you know anything unique that would have been about site-built homes that were tested in that study?

Mr. MCGEEHIN. I do not know anything unique about the site-built homes.

Mr. DONNELLY. And the results of 370 parts per billion is, in fact, higher than what some of the trailers were at; isn't that correct?

Mr. MCGEEHIN. Sure. Yes.

Mr. DONNELLY. So I guess one other question is: why didn't we test site-built homes also?

Mr. MCGEEHIN. Well, there have been a number of very large studies that tested site-built homes around the country, well-done studies.

Mr. DONNELLY. In regards to the Katrina situation?

Mr. MCGEEHIN. Well, it doesn't have to be in regards to the Katrina situation. There are site-built homes, and they were tested with the same methodology that we used, and those results are comparable.

Mr. DONNELLY. Well, what I am asking is, in regards to homes in the Katrina region at the same time that these trailers were down there, was there any test done to compare——

Mr. MCGEEHIN. No.

Mr. DONNELLY [continuing]. The levels of those homes as opposed to the levels of the trailers?

Mr. MCGEEHIN. No. The report is as it was: 519 occupied FEMA-supplied trailers.

Mr. DONNELLY. OK.

Mr. Chairman, thank you very much, sir.

Chairman WAXMAN. Thank you, Mr. Donnelly.

Dr. McGeehin, thank you very much for your testimony. We very much appreciate it. If there are further questions, we may submit them in writing to you for a response for the record.

Mr. MCGEEHIN. Thank you for the opportunity.

Chairman WAXMAN. Our next panelists will consist of the following individuals: Mr. Jim Shea, Jr. Mr. Shea is the chairman of Gulf Stream Coach and has been with Gulf Stream for more than three decades and is responsible for the company's housing division.

Mr. Steve Bennett is the president of Pilgrim International.

Mr. Ronald Fenech is the president and chief executive officer of Keystone RV. Keystone RV is a subsidiary of Thor Industries.

And then Mr. Peter Liegl is president of Forest River. He founded the company in 1996.

We welcome each of you to our hearing today. Your prepared statements will be put into the record in their entirety. We will ask each of you to limit your oral presentation to 5 minutes. There is a little device on the table that will turn green for 4 minutes, yellow for the last minute, and then turn red when the time is up. When you see that it is red, you should realize your time is up and try to make your concluding comments.

It is the practice of this committee that all witnesses who testify before us do so under oath, so please rise and raise your right hands and I will administer an oath to you.

[Witnesses sworn.]

Chairman WAXMAN. The record will indicate that each of the witnesses answered in the affirmative.

Mr. Shea, why don't we start with you.

STATEMENTS OF JIM SHEA, CHAIRMAN, GULF STREAM COACH, INC.; STEVE BENNETT, PRESIDENT, PILGRIM INTERNATIONAL, INC.; RONALD J. FENECH, PRESIDENT, KEYSTONE RV, INC.; AND PETER LIEGL, PRESIDENT AND CEO, FOREST RIVER, INC.

STATEMENT OF JIM SHEA

Mr. SHEA. Good morning, Chairman Waxman, Ranking Member Davis. My name is Jim Shea and I am chairman of Gulf Stream Coach. I appreciate the opportunity to discuss the travel trailers that our company produced and sold to FEMA. I have some brief opening remarks, but ask that my full statement be made part of the hearing record.

Gulf Stream is a small-town American company committed to manufacturing quality recreational vehicles for its customers. Our travel trailers are built by hard-working, dedicated Americans in the heartland of our Nation. Safety is a key component to our success.

Just 2 days before Hurricane Katrina hit the Gulf Coast, Gulf Stream received an urgent call from FEMA to provide 25,000 travel trailers to house possible hurricane victims. Gulf Stream was prepared to meet FEMA's critical request, because at the time we were the only manufacturer approved for rail shipment of travel trailers.

Almost every year since 1992, FEMA has purchased Gulf Stream Postal products from independent dealers to respond to natural disasters. In 2005 for the first time FEMA contracted directly with Gulf Stream to provide a total of 50,000 emergency travel trailers. It is important to note that FEMA's specifications did not include any requirement with respect to formaldehyde emission levels.

The FEMA travel trailers we manufactured followed the same specifications as those we delivered to hurricane victims in 2004. In order to meet FEMA's urgent request, Gulf Stream ramped up its production capacity and realigned its plant operations immediately upon receipt of the purchase order. We took special care to provide safe and quality product for the hurricane victims who temporarily were going to live in the travel trailers. Our FEMA units had four emergency egress windows instead of the required minimum of two. It was Gulf Stream's practice to do additional life safety systems testing, including electrical, gas supply, smoke de-

tection, and carbon monoxide detection beyond what we would do for our regular production for regular customers.

In addition to what was routinely performed on the units for the manufactured public, and FEMA inspectors were onsite at our Indiana plants during the manufacturing process, and FEMA performed inspections at the hurricane zone staging areas. Furthermore, Gulf Stream had representatives onsite in Louisiana to do additional inspections after shipment.

Today, just as when we produced travel trailers for FEMA, there are no Federal standards governing formaldehyde in the manufacture of travel trailers. The lack of such a standard leaves our industry with no clear definitive guidance on the issue. Although there are still no formaldehyde standards for covering travel trailers, Gulf Stream in 2007 voluntarily adopted the stringent product standard for formaldehyde emissions proposed by the California Air Resources Board. To our knowledge, Gulf Stream is the first RV company to receive a third-party certification of our applicable wood materials documentation, control processes, and related verification testing.

Even without a Federal standard, Gulf Stream has had a longstanding policy to purchase wood products that satisfy the HUD low-formaldehyde emissions level for manufactured housing, even though HUD standards do not apply to the manufacture of travel trailers.

Several design aspects of our travel trailers also increased ventilation beyond what was required by the FEMA specifications.

Gulf Stream received the first complaint regarding formaldehyde concerning these FEMA travel trailers in March 2006. Obviously, we were concerned about the complaints and tried to be as proactive as possible by taking the following steps: First, we sought information regarding complaints received by FEMA; second, we addressed the few complaints Gulf Stream received regarding its travel trailers, but were instructed by FEMA in May 2006 not to directly contact trailer occupants; third, we attempted to gather information on ways to identify and reduce ambient levels of formaldehyde through better ventilation solutions and processes; fourth, we provided FEMA representatives with information related to ventilation of travel trailers and other measures to reduce formaldehyde levels for sensitive people; fifth, we offered to participate with FEMA in joint testing of the travel trailers. FEMA did not accept our offer to do so; and sixth, we offered to share with FEMA the results of some informal, non-scientific screenings of FEMA-occupied travel trailers performed in late March and April 2006. FEMA did not accept our offer.

Gulf Stream has demonstrated its commitment to quality and safety for the residents from the beginning. Our record shows that we were ready, willing, and able to assist FEMA with any resident concerns.

Mr. Chairman and members of the committee, on behalf of Gulf Stream and our dedicated employees, that concludes my opening remarks. I am happy to answer your questions the members of the committee may have.

[The prepared statement of Mr. Shea follows:]

Testimony before the House Committee

on

Oversight and Government Reform

Statement of Jim Shea

Chairman, Gulf Stream Coach, Inc.

July 9, 2008

Good Morning Chairman Waxman, Ranking Member Davis, and Members of the Committee. My name is Jim Shea, and I am Chairman of Gulf Stream Coach, Inc. I appreciate the opportunity to be here today to provide testimony and to respond to the Committee's questions regarding travel trailers that our company produced and sold to the government following the Gulf Coast hurricane of 2005.

Gulf Stream is a small town American manufacturer committed to manufacturing safe and quality products for its customers. Our family has built Gulf Stream's reputation over 25 years by serving its customers, and safety is a key component to our success. The Gulf Stream travel trailers sold to FEMA were no exception. In a time of national crisis, we engaged our resources and made additional investments, and our employees worked as hard as possible on a very tight schedule so that Hurricane Katrina victims could return to their family, friends, and neighborhoods to begin rebuilding their lives.

At Gulf Stream, we build quality products because of who we are and what we stand for as a company. Members of the Committee, we all share

the same concern today, as we did before and after Hurricane Katrina, for the families of the Gulf Coast.

As you requested, this morning I will address the issue of FEMA travel trailers, including Gulf Stream's role in providing emergency shelter for hurricane victims and what the company has done to address the reported concerns about formaldehyde emissions. But first, I would like to tell you a little bit more about our company.

Gulf Stream is a family owned manufacturer of recreational vehicles. In just 25 years, Gulf Stream has become one of the leading recreational vehicle (RV) manufacturers in the country and a top employer in Northern Indiana. In its manufacturing plants, Gulf Stream now makes more than 100 models and 26 brands of motor homes and towable RVs. All of us at Gulf Stream take great pride in the fact that our travel trailers are built by a group of hard working, dedicated Americans in the heartland of our nation.

This success would not have been possible had it not been for the vision and hard work of my father, James F. Shea, Sr. After serving his country in the Air Force, working for the U.S. Treasury Department, and running a law practice in Detroit, my father moved our family to northern Indiana.

It was out of an old, abandoned sauerkraut factory in the small Amish community of Nappanee, Indiana, that my father embraced his entrepreneurial spirit when he started to produce factory built homes.

Twelve years later my father began manufacturing RVs. Gulf Stream has always been a family affair, and my brothers Brian and Dan have worked with me to build Gulf Stream into what it is today. Although my father has since passed away, my brothers and I have done our best to ensure

that the quality products manufactured by Gulf Stream represent the hard work and ideals of our family and our Midwestern roots.

Gulf Stream has achieved a lot over the past 25 years, but we never foresaw the role we would eventually play in our government's response to the largest natural disaster in our nation's history.

I have traveled to the U.S. Gulf Coast and witnessed the struggles of those left homeless by the flooding that followed the storm. Like all Americans, we were concerned and frustrated by the apparent difficulty in responding to our nation's largest national disaster. While the first wave of government aid and relief was only beginning to trickle into New Orleans, many Americans were finding ways to mobilize their own resources to help. At Gulf Stream, we were already hard at work doing our part in the national relief effort by manufacturing travel trailers even before we signed the contract with FEMA. Further, because the community wanted to help those affected by the hurricane, care packages were provided with some of the travel trailers.

Just two days before Katrina hit the U.S. Gulf Coast, Gulf Stream received an urgent call from FEMA to provide 25,000 emergency travel trailers to house probable hurricane victims.

At the time Gulf Stream received FEMA's call, my brothers and I were traveling and thus unaware of FEMA's request. In our absence, our Vice President agreed to supply 25,000 units. Later that week, Gulf Stream was asked by FEMA to put in a bid, which FEMA also accepted, for an additional 25,000 units.

We believe that the fact that Gulf Stream's travel trailers are of such high quality that they can withstand delivery by rail was critical to FEMA

selecting our company to assist with its relief operations. Rail travel is the best delivery method in most disaster scenarios, since it poses the fewest infrastructure delays. We met FEMA's critical needs because at the time we were the only RV manufacturer with the ability to ship by rail. Unlike other manufacturers, Gulf Stream had already made the structural improvements necessary to enable our units to withstand the rigors of bolt down rail transport, making our product easier to transport to the devastated Gulf Coast region.

FEMA was also familiar with Gulf Stream's long history of indirectly supplying emergency travel trailers to the Agency through various independent dealers. In 1992, FEMA used Gulf Stream products as temporary housing for the victims of Hurricane Andrew. Almost every year since, Gulf Stream has responded to similar disasters, cementing its reputation for a quality product. In 2004, when hurricanes ravaged the coasts of Florida and Mississippi, Gulf Stream was able to manufacture more than 7,000 travel trailers in less than the regular manufacturing time. Because we were manufacturing the same type of trailer, we were able to produce trailers efficiently and timely, while maintaining our quality standards. The difference in response to Hurricane Katrina was that FEMA contacted Gulf Stream directly.

FEMA's travel trailer specifications for the Gulf Coast 2005 hurricane relief were the same specifications FEMA used in 2004 disaster relief but required the ability to be moved by rail. The specifications did not include any requirements with respect to formaldehyde emission levels, wood products, HUD standards, etc. In addition to the travel trailers sold directly to FEMA under these contracts, FEMA purchased some Gulf Stream travel

trailers from independent dealers' existing inventory. Those units, plus many additional units from various other manufacturers that were purchased from dealer lots, had been previously manufactured and were available for purchase by the general public prior to Hurricane Katrina.

Gulf Stream began ramping up production capacity and realigning our plant operations immediately. After securing the first contract, we hired more than 300 additional workers in the first month at our Indiana plants and dedicated nine facilities to meet the demand.

At this point, let me recognize the extraordinary efforts of our dedicated employees: they deserve a great deal of credit for their role in producing up to 200 units per day and nearly 3,000 travel trailers in the first four weeks alone. They worked long, hard hours, often taking time from their families, and foregoing scheduled vacations so that they could complete all of the units within a very short timetable.

Gulf Stream took particular care to provide a safe and quality product for the hurricane victims who would be residing in our travel trailers while they were rebuilding their homes.

The travel trailers were built on a wooden frame covered in white aluminum siding. Inside was an eating area, including a gas stove, kitchen table, refrigerator and double-sink. Each travel trailer also had basic sleeping quarters, including an adult-sized bed and a set of bunk beds. Additional amenities included sewer, water and electric hook-ups, a toilet and shower, and an air conditioning unit.

Gulf Stream is proud of our quality and safety record. The travel trailers sold to FEMA were no exception. We designed our FEMA units with four egress windows instead of the required minimum of two. The

extra egress windows, among other things provided more ventilation and well-located exits in case of emergency.

Each FEMA unit underwent a special series of factory inspections of all life safety systems. The systems tested included electrical, gas supply, smoke detection, and carbon monoxide detection.

It is important for the Committee to understand that FEMA inspectors were on site at our Indiana plants during the manufacturing process. Before FEMA took possession of the units, additional inspections were performed by Gulf Stream representatives and FEMA inspectors at the hurricane-zone staging areas.

In all, Gulf Stream manufactured 50,000 units to provide much needed emergency housing for Hurricane Katrina victims. My brothers and I are very proud that our company was able to play such a critically important role in the post-Katrina relief effort, while also meeting the tough challenge of producing such a large number of quality emergency travel trailer units in such a short period of time.

While Gulf Stream is proud of our travel trailers' outstanding safety record, we remain concerned about health issues of the Hurricane Katrina victims.

It is important to understand that formaldehyde is not purchased or used directly by Gulf Stream for the production of travel trailers. The same is true with respect to the travel trailers produced and sold to FEMA following the Gulf Coast hurricanes of 2005, i.e., formaldehyde was not applied or otherwise used, in either its liquid or gaseous form, by Gulf Stream during the production of any travel trailers.

Formaldehyde is usually present in small amounts in materials used in the production of travel trailers for FEMA, as well as in the ordinary production of units for the general public. In fact, formaldehyde is present to some degree in many wood and other consumer products used in travel trailer construction and in other industries such as home building, home remodeling, cabinet making, and furniture making. Reportedly, formaldehyde has apparently been in widespread commercial use for almost a century and is considered to be one of the most common binding agents used in manufacturing. In addition to manufacturing, we understand that formaldehyde is also present in common, everyday products used in the home, ranging from toothpaste to coffee and from shampoos to food products.

According to numerous published reports, formaldehyde is an organic, naturally occurring substance that is produced by all living organisms, including humans, is naturally present in the bloodstream, and is exhaled in human breath.

Gulf Stream has continually sought ways to provide quality products for its government, corporate, and individual customers. These efforts included specifying to suppliers that we receive low formaldehyde emitting products. It is important to note that, even as of this writing, there are no federal standards governing formaldehyde emissions in travel trailers. I raised this point just recently with a representative of the Center for Disease Control and Prevention (CDC) during an April 2008 meeting with manufacturers. He confirmed that fact, emphasizing that there is no U.S. Government standard for formaldehyde for indoor air in residences. The lack of such a standard leaves manufacturers like Gulf Stream, which

understandably have no special training or expertise regarding formaldehyde levels and their effects, with no clear and definitive guidance on this issue.

Despite the lack of any government requirement, Gulf Stream, on its own initiative, has done its best to address this issue. Our company has a long-standing policy to purchase wood products that satisfy the HUD low formaldehyde emission (LFE) levels for manufactured housing, even though compliance with the HUD standards is not required in the manufacture of travel trailers. Several aspects of Gulf Stream's design and manufacturing processes improve travel trailers' ventilation, which is important in lowering formaldehyde levels. According to government reports, properly ventilating a travel trailer during its initial months of habitation can reduce levels of formaldehyde in the building products.

There were at least two significant aspects of Gulf Stream's travel trailer design that increased ventilation beyond what was required by the FEMA specifications:

- Gulf Stream's travel trailers included four full-tilt windows meeting egress requirements. In addition to qualifying as points of egress, the windows in Gulf Stream's units open more widely than many other types of windows and allow maximum ventilation of units even during inclement weather; and
- The company provided a power range vent in the kitchen and a power vent fan in the bathroom of its units.

In short, we believe Gulf Stream took advanced steps to ensure improved indoor air quality in its products, including the travel trailers sold to FEMA. Despite those efforts, other factors may have affected formaldehyde emissions in post-Katrina emergency housing. The urgency

of FEMA's post-Katrina requirements may have been a factor. At FEMA's request, most of these travel trailers were produced and delivered to hurricane victims in unusually short periods of time, in which FEMA may not have allowed time for airing out prior to occupancy.

Emergency travel trailers were neither designed nor intended for permanent or long-term housing. In the wake of Hurricane Katrina, however, these short-term shelters for hurricane victims became long-term residences.

Gulf Stream received its first complaint regarding formaldehyde emissions in a FEMA travel trailer in March, 2006. We did our best to address the complaints and investigate and resolve the concerns of FEMA and its occupants. We are diligent and are known for our customer service; as such, we were as proactive as possible in our response. Gulf Stream took the following steps:

First, we sought information regarding complaints received by FEMA. We spoke to the FEMA employees with whom we were working in the affected areas, as well as in Washington, D.C.;

Second, we directed Gulf Stream employees to attempt to address the few complaints Gulf Stream received regarding its travel trailers, but were ultimately instructed by FEMA that Gulf Stream should not communicate directly with occupants of travel trailers it manufactured;

Third, we gathered information on ways to identify and reduce levels of ambient formaldehyde in travel trailers;

Fourth, we provided FEMA representatives with information related to ventilation of travel trailers and other measures to increase ventilation;

Fifth, we offered to participate with FEMA in joint testing of the travel trailers with FEMA. FEMA never accepted that offer; and

Sixth, we offered to share with FEMA the results of some informal formaldehyde screenings of occupied travel trailers that one of our employees had performed in March and April 2006 in anticipation of litigation that would follow the stories of formaldehyde reports in the press. Gulf Stream rented a formaldehyde screening device and the employee brought it with him on a customer service trip to St. Bernard Parish, where he located and spoke to several residents about warranty issues and if they experienced or had concerns about odors, and took readings in their trailers. It is important to understand that the Gulf Stream employee who conducted these screenings is not a scientist and had no training or prior experience on the use of the screening device or any others. He reported that the results he was obtaining at times varied dramatically and were erratic, even within the same unit. After his trip, the employee determined that he had failed to follow the operating instructions for the device. That said, although the screening results were not scientific and not reliable, we offered to share these informal screening results with FEMA in May 2006. That offer was never accepted by FEMA.

On May 17, 2006, FEMA specifically advised us NOT to directly contact occupants. The agency told us it had the means to address occupant concerns and that it would let us know if it wanted our assistance. In

addition, FEMA said that it had field staff and contractors on the ground who could handle the situation. Although we were limited in terms of direct contact with occupants, we continued to advise FEMA local staff on technical issues and informed upper-level FEMA staff of developments and of our continued willingness to work with them in addressing ventilation in our units.

For example, Gulf Stream wrote to FEMA during 2006 to inform FEMA about the Fan-Tastic vent, which could be installed in travel trailers and would increase ventilation rates, even beyond the already substantial ventilation already available in the unit. An internal email from a FEMA employee, which is posted on this Committee's website, reports that Gulf Stream was "working closely with FEMA to resolve the formaldehyde problem" and had "offered to install an exhaust fan" in units for sensitive individuals who had complaints that related to formaldehyde. Despite Gulf Stream's offers to assist, throughout the Summer of 2007, FEMA advised Gulf Stream that FEMA had a procedure in place to address occupant complaints by relocating the occupant to a different travel trailer. FEMA also advised Gulf Stream that it had received very few occupant complaints regarding formaldehyde. To our knowledge, our suggestions regarding use of such mitigation measures as additional ventilation fans, air purifiers, and air exchangers, for the benefit of particularly sensitive individual occupants, were not implemented by FEMA.

As I mentioned, there are still no federal formaldehyde standards applicable to travel trailers. Since there is no current standard, we at Gulf Stream have taken it upon ourselves to adopt a more stringent standard for product formaldehyde emissions in all RVs that we manufacture. In the

2007, we voluntarily adopted the standard for formaldehyde emission levels proposed by the California Air Resources Board, also known as CARB. The Recreation Vehicle Industry Association (RVIA) has followed our lead and has recently set this standard for all of its members effective, January 1, 2009.

Gulf Stream is the first RV company to receive a third-party certification of our applicable wood materials control processes and related verification testing by PFS Corporation. Gulf Stream has been converting to the use of CARB emission wood products since May 2007. By the end of the year, this conversion was substantially complete. In March of 2008, we received a third-party certification attesting to the effectiveness of our material acquisition systems for these types of products, including work processes, documentation, and verification.

Finally, the Committee requested that we address the results, published in February, 2008, of travel trailer testing conducted by CDC. Just last week, CDC released two additional studies. As the Committee is aware, our business is manufacturing. We are neither scientists nor experts in the analysis of formaldehyde levels and their potential effect on human health. By necessity, our comments regarding the work of CDC in this area are limited to our reading of the data and conclusions put forth by CDC and in other available public materials.

Gulf Stream is, of course, concerned by CDC's report that formaldehyde levels in a small sample of FEMA-supplied occupied travel trailers were "elevated relative to typical levels of U.S. indoor exposure." As I indicated, Gulf Stream is voluntarily taking steps, including adoption of

the CARB standards. Gulf Stream believes, however, that it is important to consider CDC's report carefully, and within a broader context.

The average ambient formaldehyde level for Gulf Stream travel trailers, as reported by the CDC, is in fact far below the only federal regulatory targets for ambient formaldehyde that are applicable in the housing context, though as noted above, they do not directly apply to travel trailers. The Gulf Stream average ambient formaldehyde level reported by the CDC is approximately 1/4 the only regulatory target level the Government has provided for ambient formaldehyde in residential housing, i.e., HUD's determination that "an indoor ambient formaldehyde level of 0.4 ppm [400 ppb] provides reasonable protection to manufactured home occupants."[1] The CDC's reported test results for Gulf Stream travel trailers are even further below the 0.75 ppm (750 ppb) time-weighted average exposure limit for a full work day set forth by Occupational Health and Safety Administration (OSHA). OSHA's short-term permissible exposure limit is 2.0 ppm (2,000 ppb).[2] According to the CDC, the average ambient formaldehyde level in Gulf Stream units purchased by FEMA was less than 1/7 OSHA's permissible exposure limit.

To analyze ambient formaldehyde levels found in travel trailers purchased by FEMA, the CDC focused on "typical U.S. background levels (e.g., approximately 10-30 ppb in indoor air)" of formaldehyde. But typical ambient formaldehyde levels in housing in the relevant area, South Louisiana, were apparently not considered. According to a pre-Katrina analysis conducted by researchers at Tulane University, the average

[1] 49 Fed. Reg. 31996, 31998-99 (Aug. 9, 1984).
[2] 29 C.F.R. 1910.1048(c)(1).

formaldehyde level in site-built homes across South Louisiana was more than three times greater than the average level in the Gulf Stream travel trailers that were analyzed by the CDC.[3] Of the 419 samples taken from 53 houses across South Louisiana as part of the Tulane Study, "the Southern Louisiana formaldehyde mean was 0.46 mg/m3," which is the equivalent of 0.37 ppm (370 ppb).[4] Only 29% of the homes tested below 0.1 ppm (100 ppb), and during the autumn and winter months, none of the homes tested below that level.

Even the final CDC report acknowledges that other factors such as smoking can affect the ambient formaldehyde level. However, the CDC apparently spent little time addressing these other potential sources of ambient formaldehyde that are relevant to South Louisiana. For instance, according to the Agency for Toxic Substances and Disease Registry (ATSDR), cooking fish is a substantial source of formaldehyde in indoor air, producing levels of more than 5.3 ppm (5,300 ppb).[5] That level of formaldehyde is more than 51 times the average ambient formaldehyde level found by the CDC in Gulf Stream travel trailers, and it is 331 times the guideline by National Institute for Occupational Safety and Health (NIOSH) for workplace exposure in an 8-hour day that has been referenced in some sources discussing formaldehyde in travel trailers. Moreover, although CDC's Interim Findings indicate that some "adjust[ments]" were made "for smoking, windows being open, temperature, and humidity," it is not clear

---

[3] Lemus, et al., *Potential Health Risks From Exposure To Indoor Formaldehyde*, 13 Rev. Environmental Health 91-98 (1998) ("Tulane Study," which was funded by the Louisiana State Department of Natural Resources, see p.97).
[4] Id. at 93.
[5] ATSDR, *An Update and Revision of ATSDR's February 2007 Health Consultation: Formaldehyde Sampling of FEMA Temporary-Housing Trailers Baton Rouge, Louisiana*, at p.8, Table 2, available at www.atsdr.cdc.gov/substances/formaldehyde/pdfs/revised_formaldehyde_report_1007.pdf.

how those adjustments were made. Gulf Stream will continue its efforts to responsibly and effectively address this issue by identifying and implementing ways to further reduce ambient formaldehyde in its travel trailers.

Regarding the CDC study released last week on trailer components, we are still reviewing the study and trying to more fully understand the methodology it employed. As we understand it, the CDC and the Lawrence Berkley National Laboratories (LBNL) tested only four trailers – all of which were unoccupied. We believe that the use of such a small number of trailers may not provide a representative sample. Further, conducting tests on unoccupied trailers may not best represent the actual living conditions of those who actually reside in trailers. We understand that the trailers were moved to the testing area on November 7, 2007 and apparently sat for seven days, completely closed, prior to testing – restricting normal ventilation. Until we are better able to understand the testing method, we are unable to directly address the results of this report. We look forward to seeing the final report in order to completely understand the protocols used by the CDC.

Mr. Chairman, and Members of the committee, on behalf of my family, Gulf Stream and our employees, thank you again for inviting me here today to testify about what we are doing in terms of quality and safety of the travel trailers we produce.

I'd be happy to answer any questions you may have for me today.

Chairman WAXMAN. Thank you very much, Mr. Shea.
Mr. Bennett.
Mr. BENNETT. I have no opening statement.
Chairman WAXMAN. No opening statement.
Mr. Fenech.

STATEMENT OF RONALD J. FENECH

Mr. FENECH. Mr. Chairman and members of the committee, my name is Ron Fenech and I am proud to be here this morning to represent the 3,000 men and women who work assembling recreational vehicles for Keystone RV and our thousands of customers.

After the Gulf Coast hurricanes of 2005, as with all Americans, our employees sympathized with the hundreds of thousands of people who overnight found themselves homeless. Emergency workers were faced with an incredible challenge as they scrambled to rescue survivors, account for the missing, to feed those in need, and there was an immediate critical need for basic shelter.

We have been invited here today to discuss the CDC finding with regard to formaldehyde in trailers. When it comes to assessing safe levels of formaldehyde, there is no consistent Government standards. And, as the CDC, itself, stated in its February 2008 formaldehyde report, there is no specific level of formaldehyde that separates safe from dangerous.

The recreational vehicle industry cannot address the formaldehyde issue alone. It is much broader. In fact, the materials that Keystone uses to assemble its trailers are generally the same types of materials used in home construction and can be found in local home improvement stores.

We are looking to the Government to evaluate the science and provide industry with the uniform standard. Once that standard has been developed, we hope the home construction industry will join us in adopting that standard. Together, these actions can lead to a workable national approach to this issue.

We join with others in applauding the recent announcement by the EPA that they will conduct a comprehensive review and will, we hope, announce a clearly articulated standard that our industry and our suppliers can follow. Until then, we have not and we will not stand by idly. The Recreational Vehicle Industry Association has recently announced compulsory standards that require manufacturers to build all units using CARB compliant wood by January 1, 2009, and CARB certified wood by July 1, 2010. And at Keystone we intend to beat those deadlines. We have informed our suppliers that as quickly as possible we will only purchase supplies that meet CARB standards.

Hurricane Katrina was the worst natural disaster in modern U.S. history. Hundreds of thousands of Americans needed temporary shelter, and I am proud to say that our industry was part of the solution. I sincerely hope that there will never again be another disaster that requires our vehicles to be used under such extreme conditions for such lengthy periods of time, but if there is, the lessons learned from this process will inform both industry and Government to ensure a sound response to any need that may arise.

With that, I thank the committee for the opportunity to appear here today and to answer any questions that you may have.

[The prepared statement of Mr. Fenech follows:]

STATEMENT OF RON FENECH
KEYSTONE RV

Mr. Chairman and Members of the Committee:

My name is Ron Fenech, and I am proud to be here this morning to represent the 3,000 men and women who work assembling recreational vehicles for Keystone RV and our thousands of customers.

After the Gulf Coast hurricanes in 2005, as with all Americans, our employees sympathized with the hundreds of thousands of people who, overnight, found themselves homeless. Emergency workers were faced with an incredible challenge. As they scrambled to rescue survivors, account for the missing, and feed those in need, there was an immediate and critical need for basic shelter.

To address the housing crisis, the government turned to the recreational vehicle industry. This was not the first time FEMA used travel trailers to solve a temporary need to shelter hurricane victims. Travel trailers, including some from Keystone, were used in Florida after Hurricane Charlie in 2004.

No matter whom the end user may be – vacationers, campers, or those in need of short-term housing – we take great pride in producing a quality product. Keystone's travel trailers are designed and intended to be attached to a SUV or pick-up and towed by a family or outdoor enthusiast as they travel to campgrounds, trailer parks or other vacation spots. In more than a decade of producing recreational vehicles, our customers have consistently found Keystone products to be safe and reliable vehicles to serve their recreational needs.

After the Gulf Coast hurricanes, FEMA purchased temporary housing from a number of sources. Although Keystone did not sell directly to FEMA we do know that FEMA purchased a number of our vehicles from existing inventories available on dealers' lots. In addition, after the storms, some of our dealers purchased trailers in anticipation of vehicle requests from FEMA, insurance companies and others.

Because we had no contract with FEMA, the only way we can verify how many Keystone units reached victims of the hurricanes is through the vehicle warranty registrations we have received. Based on an examination of our records, we can only verify that FEMA purchased from dealerships approximately 2,700 Keystone recreational vehicles that may have been used for temporary housing.

We have been invited here today to discuss the CDC's findings regarding levels of formaldehyde in trailers provided by FEMA to victims of the Gulf Coast hurricanes. When it comes to assessing safe levels of formaldehyde, there are no consistent government standards.

It is my understanding that formaldehyde is emitted by wood products that are used in homes, offices, buildings and vehicles. However such products are not the only source of formaldehyde. Formaldehyde is also found in household cleaners, antiseptics, cosmetics, medicines, and cigarette smoke. In fact studies have shown that it is present in outdoor air. As the CDC itself stated in its February 2008 formaldehyde report, "There is no specific level of formaldehyde that separates 'safe' from 'dangerous.'"[1]

The recreational vehicle industry cannot address the formaldehyde issue alone; it is much broader. In fact the materials that Keystone uses to assemble its trailers are generally the same types of materials used in home construction and can be found at your local home improvement store.

[1] Interim CDC Findings—Formaldehyde Levels in FEMA-Supplied Travel Trailers, Park Models, and Mobile Homes, p. 15.

We are looking to the government to evaluate the science and provide industry with a uniform standard. Once that standard has been developed we hope the home construction industry will join us in adopting that standard. Together, these actions can lead to a workable national approach to this issue.

We join with others in applauding the recent announcement by the EPA that they will conduct a comprehensive review and will, we hope, announce a clearly articulated standard that our industry and our suppliers can follow.

Until then, we have not and will not stand idly by. The Recreational Vehicle Industry Association has recently announced compulsory standards that require manufacturers to build all units using CARB-compliant wood by January 1, 2009 and CARB-certified wood by July 1, 2010. And at Keystone we intend to beat those deadlines. We have informed our suppliers that, as quickly as possible, we will only purchase supplies that meet CARB standards.

Hurricane Katrina was the worst natural disaster in modern U.S. history. Hundreds of thousands of Americans needed temporary shelter, and I am proud to say that our industry was part of the solution. And I sincerely hope that there will never again be another natural disaster that requires our vehicles to be used under such extreme conditions for such lengthy periods of time. But if there is, the lessons learned from this process will inform both industry and government to ensure a sound response to any need that may arise.

I thank the Committee for the opportunity to appear today and to answer any questions you may have.

Chairman WAXMAN. Thank you very much, Mr. Fenech.

Mr. Liegl.

STATEMENT OF PETER LIEGL

Mr. LIEGL. Thank you, Mr. Chairman and members of the committee. My name is Peter Liegl. I am president of Forest River. On behalf of more than 5,000 employees, thank you for the chance so we can tell you about what our company does. I am especially proud to tell you how Forest River workers pitched in to help the victims of Hurricane Katrina.

We started Forest River in 1996. It began in the part of Indiana where people of different backgrounds share a strong work ethic and what we call Hoosier values. We think that because of what we do lots of American families are able to get closer to the outdoors and to travel and explore this great country. Today, 12 years later, we currently have 5,000 employees who work in more than 60 locations. Forest River has plants in Indiana, California, Michigan, Texas, Georgia, and Oregon. Last year we built and sold over 100,000 units. We are still learning and we are still improving. Our folks still work hard and still care what they do.

They cared in 2004 when hurricanes hit Florida. Forest River employees built 800 units to FEMA's specifications, and our folks were proud. We never received a complaint about one of them.

They cared in 2005 when Hurricane Katrina and Rita devastated the Gulf Coast. Like other Americans, Forest River employees wanted to help, and, again, they did. This time we were asked to build 35,000 RVs. We had to decide what made sense for our workers, our suppliers, our dealers, and our customers, so our team at Forest River came up with a production schedule that would allow us to build 5,000 trailers to help the victims, and Forest River workers built those trailers on the same production line using the same materials, the same components, the same quality standards, the same inspectors as they do for the product they build every day. The quality was the same as all the other units we build.

The units we built for the Gulf Coast received the RVIA seal because they met RVIA standards.

Of course, our folks couldn't build these 5,000 units for free. Like every business, we have to pay our workers and our suppliers. We have to earn enough to keep things going, but we never thought about charging higher prices. We sold the FEMA trailers at the same modest profit levels as our normal sales. Our overall profit that year was about the same as it was in the years before and the years after Katrina.

Today's hearing involves formaldehyde. We all know there is some formaldehyde in wood products, carpeting, fabrics used in the RVs. It is also used in building homes, apartments, and office buildings. We all agree we don't want formaldehyde or, for that matter, any other substance to reach levels where it is a serious health threat. Most of us aren't doctors or scientists, and those people who are doctors and scientists don't agree on the level of formaldehyde that are safe or not safe. There isn't an agreement on how to measure formaldehyde levels.

No one has all these answers yet. Certainly I don't. But what I can tell you is Forest River's experience.

First, formaldehyde has not historically been an issue. Over the dozen years we have been in business, we have made and sold over one million units. Out of those million-plus units, I think we only had three instances where customer concerns actually required our testing of the vehicles. In two of the cases, the formaldehyde level tested quite low. In the third it was pretty clear at the end of the day that whatever the problem was coming from, it wasn't on the manufacturer's end.

Given that experience, literally less than a handful of instances of this sort out of a million units, I think you can understand why I say that formaldehyde has not historically been an issue with Forest River products and customers.

The second point is we have not been sitting idly by waiting for doctors and scientists to figure out the answers. We may not know the answers, but we know that it can't hurt by moving closer to the California stricter formaldehyde standard for wood products even before it was recommended in the industry, which we have done.

In closing, I want to thank you again for your allowing us to share Forest River's story. Our employees are proud of the product we make and the company they have helped build.

I must also tell you candidly that many of our workers are now confused and hurt about the charges about the quality of RVs, but they know when it comes to Forest River products nothing can be further from the truth. But I think they also have the faith, as I do, that responsible people will be fair and will make the decisions on fact.

Thank you, Mr. Chairman and the committee, for letting me tell you my story. I will answer any questions that you might have.

[The prepared statement of Mr. Liegl follows:]

Written Statement of Peter J. Liegl,
President of Forest River, Inc.,
for July 9, 2008 Hearing of the
House Committee on Oversight and Government Reform

Thank you, Mr. Chairman and Members of the Committee.

My name is Peter Liegl. I am the President of Forest River. On behalf of our more than 5,000 employees, I appreciate the chance to tell you about our company and what we do. I'm especially proud to tell you how Forest River workers pitched-in to help victims of Hurricane Katrina.

We started Forest River in 1996. It began in an Indiana community where people of different backgrounds share a strong work ethic and what we like to call "Hoosier values." It's a place where folks believe fine craftsmanship and a little elbow grease will produce great products that our customers will enjoy for years.

Mostly we build RVs. We think that because of what we do, lots of American families are able to get closer to the outdoors, and to travel and explore our country. That's why we build our RVs, and build them well. That's why our owners buy them and enjoy them.

Our first unit was built in a garage. Twelve years later, the Forest River family has grown. Currently, we have more than 5,000 employees who work in more than 60 locations. There are Forest River plants in Indiana, California, Michigan, Texas, Georgia and Oregon. Last year, we built and sold over 100,000 recreational vehicles.

We're still learning, and still improving. Our folks still work hard, and still care about what they do. They are just like the people that you have the privilege of representing here in Washington. And like the people you represent, they care a lot when their fellow Americans are suffering.

They cared in 2004, when a rash of hurricanes hit Florida. Forest River was asked to build 800 units to help the victims. Specifically, North American Catastrophe Services, which is an approved supplier for FEMA, asked Forest River to build 800 units to help the victims. Our folks dove right in, building those RVs to FEMA specifications. They were eager to help. They were proud we never received a complaint about the units they built.

They cared in 2005, when Hurricane Katrina devastated the Gulf Coast, followed by Hurricane Rita. Like all Americans, our employees were stunned by the devastation, by the cities and neighborhoods destroyed in an instant, and by the thousands of people left homeless. Like other Americans, Forest River employees wanted to help. And once again, they did.

This time, NACS asked if we could produce 35,000 units for it to sell to FEMA. We knew we had to figure out what we could do— consistent with our production capacity, our ongoing operations and commitments, and our quality standards. But we wanted to help, even if it meant interrupting some of our other planned production. We knew we had to make a decision that made sense for our workers, our suppliers, our dealers and our customers. So, our team at Forest River came up with a production schedule that allowed us to build 5,000 trailers to help Gulf Coast victims.

I really don't know how to describe how eager our folks were to do this. But I can tell you how they did it.

Forest River workers built those 5,000 trailers on the same production lines, using the same basic raw materials and same basic components, with the same quality standards and the same inspectors, as they do for the products they build every day for our dealers to sell to our retail customers. The FEMA specifications called for some upgrades, including residential refrigerators and commodes, a larger fire extinguisher, a larger water heater, an over-the range microwave, and a 15,000 BTU ducted air conditioner. So, we put those in. We didn't put in holding tanks, or a freshwater demand system, because those were FEMA's instructions.

Importantly, the quality of construction on the FEMA units was the same as for our other units. The 5,000 units we built for the Gulf Coast received the R-V-I-A seal, because they met the standards established by the Recreational Vehicle Industry Association. We even said we wouldn't ship our units if they were going to be shipped by rail, because we've learned that rail shipping has too many risks of damage— risks we won't take with Forest River products.

Of course, our folks couldn't build those 5,000 units for free. Like every business, we have to pay our workers and our suppliers, and earn enough to keep things going. But we never even thought about charging higher prices. We sold the trailers built for the Gulf Coast at the same modest profit level we make on normal sales. Our overall profit that year was about the same as it was in the years before and the year after Katrina.

The numbers, which we've provided to Committee staff, are as follows: The 5,000 FEMA-specification units were sold to NACS for $9,495 each (plus freight), yielding a total of about $47,475,000 in gross revenue. Forest River's pre-tax profit was approximately $475 per unit, for total pre-tax profit of around $2,275,000. The 5,000 FEMA-specification units amounted to about 3.13% of Forest River's total sales of 108,528 units in 2005. Our after-tax profit in 2005 was 3.62 %, compared to 3.76% and 3.56% in 2003 and 2004, respectively; and compared to 3.74% in 2006, and 3.78% in 2007.

Later, we learned that FEMA's Gulf coast relief efforts also included buying trailers right off dealers' lots, even some of Forest River's trailers. These, too, were being used as temporary housing for people who had been left homeless. We still don't know exactly

how many Forest River units were purchased by FEMA from dealers, because it has been difficult to obtain an accurate list of the Vehicle Identification Number information needed to figure this out.

Although the VIN data we have recently received is still incomplete and appears to have some duplication, our review indicates that FEMA bought another 5,000 to 6,000 Forest River units, and perhaps a few more, directly from dealers. Whatever the exact number, Forest River workers were happy to know that this was another part of their contribution in responding to a major catastrophe.

Today's hearing involves formaldehyde. We all know there is some formaldehyde in wood products, carpeting and fabrics used in making RVs. The same is true of products used in building houses and apartment buildings. There is some formaldehyde in our cars, our homes, our offices, our furniture, and our restaurants.

A number of factors can have significant impact on ambient formaldehyde levels at any given moment. Cigarette smoke, for example, contains significant amounts of formaldehyde. Formaldehyde is also given off by cooking some common foods, such as fish or broccoli. If you look at the "Interviewer Questionnaire" that was used by the Centers for Disease Control in connection with its recent testing of temporary housing units used in the Gulf Coast, you'll find there are some three pages of questions covering a wide variety of different factors that can affect the formaldehyde level shown at the time a particular may have been taken.

One very important factor, which CDC and others have consistently pointed out, is the amount of air circulation or air exchange in a given type of unit. On this point, Forest River knows that the 5,000 units it produced for NACS to sell to FEMA had five windows and both a manual and a power air vent. These features provide good air circulation for units of this size and floor plan. Again, these features are similar to those on Forest River models that we built for our dealers to sell to our retail customers.

What we don't want is for formaldehyde – or for that matter, any other substance that's part of the world we live in – to reach levels where it's a serious health threat. I think people of good will are on the same page about that, even as we're working to find answers. Most of us aren't doctors or scientists; and those who are doctors and scientists don't agree on what levels of formaldehyde are and aren't safe for most people. As the Committee knows from its earlier work in this area, different standards have been proposed by HUD, by EPA and by others, and studies and proposals on this are still ongoing. There isn't even agreement on how to measure formaldehyde levels.

No one has all these answers yet. Certainly, I don't pretend to. But what I can contribute is to tell you about Forest River's experience and my own experience.

First, I've been in this business for more than 30 years. The fact is that formaldehyde has not historically been an issue with RV products and our customers. And, during the more than a dozen years that Forest River has been in the business, we have made and sold more than a million travel trailers and other RVs. Out of all those million-plus RVs, I think we have had only three instances where customer concerns actually required our testing the vehicle for formaldehyde.

We provided Committee staff detailed testing data about those isolated cases. The simple summary is this: In two of those cases, the formaldehyde level tested quite low. In the third, it was pretty clear at the end of the day that wherever the problem was coming from, it wasn't on the manufacturing end.

Given that experience – literally less than a handful of instances of this sort out of over a million units – I think you can understand why I say that formaldehyde has not historically been an issue with Forest River products and customers, and has not been an issue in the industry that now has more than 8 million families across the country.

The second point is that we haven't been sitting by, waiting for the doctors and scientists and regulators to figure out the answers. We may not know the answers, but we know that it couldn't hurt to move toward California's stricter formaldehyde standards for wood products, even before it was recommended in the industry.

I read with interest portions of the Select Committee's Final Report on the Response to Hurricane Katrina. The Report, as you know, is titled "A Failure of Initiative." I want to assure this Committee that there was no "failure of initiative" on the part of Forest River or its employees. Importantly, Forest River and many other private companies made sacrifices to assist the victims of this disaster.

Forest River hasn't ruled out the possibility of helping again when natural disaster strikes but, as the Report stated, for the vast majority of manufacturers who —like Forest River—just tried to help, the cost of that risk may not be worth it.

In closing, I want to repeat my appreciation for being allowed to share the Forest River story. Our employees are proud of the products we make, and the company they have helped build. But I think they took more satisfaction from doing their part to help out the victims of Katrina than from anything else they do.

I must also tell you, candidly, that many of our workers are now befuddled and a bit hurt at the charges about the quality of RVs supplied to Gulf Coast victims. They know that when it comes to Forest River products, nothing could be further from the truth. But I think they also have faith, as I do, that responsible people will be fair, and will make their judgment on the facts.

Thank you again, Mr. Chairman. I will be happy to try to answer the questions you and your colleagues may have.

Chairman WAXMAN. Thank you, Mr. Liegl.

We are now going to recognize Members to ask questions for 5 minutes apiece, and I will start off the questions.

Mr. Shea, I wrote to Gulf Stream on February 14th of this year and I asked your company's help in understanding why a Gulf Stream travel trailer sold to FEMA would have high levels of formaldehyde, and I want to read what Gulf Stream said in response to my question on March 7th. Here is what they said: "Gulf Stream respectfully disagrees with the premise of the committee's question, i.e., that formaldehyde levels in the trailers it sold to FEMA following the Gulf Coast hurricanes of 2005 were high."

Given what we know now, I find this response astonishing.

In March 2006 trailer occupants began to complain about formaldehyde. On March 21, 2006, Steven Miller of FEMA e-mailed your brother Dan Shea and asked him if Gulf Stream had "the capability to put this to bed." Were you aware of this e-mail?

Mr. SHEA. Yes, sir.

Chairman WAXMAN. Your brother responded that he would send a person to Baton Rouge to test units. From the end of March until May 2006 Gulf Stream vice president Scott Pullin tested FEMA trailers. He tested approximately 50 trailers, including 11 occupied trailers. Mr. Pullin's test indicated formaldehyde levels at or above 100 parts per billion within every occupied travel trailer he tested; 4 of the 11 occupied trailers had levels above 500 parts per billion.

Mr. Pullin also tested over 25 new Gulf Stream travel trailers that had not yet been deployed for displaced residents, and over 10 of these trailers contained formaldehyde levels in excess of 900 parts per billion. One Gulf Stream trailer had formaldehyde levels of 2,690 parts per billion.

In 2006, Gulf Stream knew better than anyone that formaldehyde levels in the travel trailers it made for FEMA were high, and just last week the Centers for Disease Control confirmed that even in the winter of 2007 and 2008 56 percent of Gulf Stream's travel trailers had elevated levels of formaldehyde.

I have one question for you, Mr. Shea. Do you still disagree that formaldehyde levels in FEMA's Gulf Stream trailers were high?

Mr. SHEA. Well, Mr. Chairman, when I reviewed the CDC report, the most recent CDC report on occupied trailers, I see that our levels of occupied units fell——

Chairman WAXMAN. We cannot hear you.

Mr. SHEA. Yes. I would just like to repeat, sir, that what we saw in the occupied unit testing that the CDC did was that our units fell in what they would term the intermediate level.

Chairman WAXMAN. How about your own testing?

Mr. SHEA. We did not do testing, sir. We used an informal device, a screening device. It is not a scientific device. It is not accepted by NIOSH. It is not accepted by any organization. It could have been used by anyone, any company, any agency. It is not testing, sir. It is a screening device that picks up many other components, chemical components. It is not testing.

Chairman WAXMAN. Whatever the validity was of that test, it certainly gave you an indication of very high levels of formaldehyde in your own trailers, didn't it?

Mr. SHEA. Let me tell you, we were a proactive company, sir. One of the first things we did—in fact, Mr. Pullin, a long-time technical employee, vice president of this company went into the field, was in the field on other matters, and he canvassed and talked to other occupants, to varied trailer residents. They asked them what their experience was, and they said they were very happy with their trailers. They weren't having any problems. They were enjoying their trailers. There were no issues.

Now, at the time that he did quickly take a snapshot deployment with this tool, it was screening. It was not testing. It was a quick snapshot that would have reflected anything that the residents would have done in the unit at the time.

I remind you that they were not complaining. There were not symptoms. He also——

Chairman WAXMAN. Well, you did have some complaints, because I just read one of the complaints. In fact, one of the people said please, please, please help me. I have this formaldehyde, and it is causing problems in my breathing—to paraphrase it.

Mr. SHEA. Yes, sir. I would like to——

Chairman WAXMAN. And, notwithstanding that, you did the testing and you told FEMA you didn't get any complaints, and you told them you got some test results, but you didn't tell them what they were. They didn't ask. You told them if they asked, then you would share it. But your own test results showed high levels of formaldehyde.

Mr. SHEA. Yes. I would like to set the record straight there, sir. We communicated with FEMA. Actually, we asked FEMA, Do you have any complaints? We wanted to assist. We wanted to visit people. We wanted to lend whatever we could for sensitized individuals. We had three complaints come in directly to ourselves in that March period after the initial news reports, and we investigated all three of them. Then in mid-May, after we had asked FEMA for what complaints they had, which they directed two people to us, two of those people—none of them had formaldehyde complaints. What they had was one complained on odor from an improperly hooked-up sewer. The other was concerned about wanting to buy her unit and she had security concerns. Those are the two complaints that we received from FEMA.

Chairman WAXMAN. Mr. Shea, my time is up, but I do want to tell you that if you have done some kind of testing and you see the kind of high levels, even over 2,000 parts per billion, in some of your trailers, the response, I think, of a responsible businessman should have been to test further, to find out what is going on, to take some kind of responsible action and not to come before Congress and say FEMA didn't tell me they had complaints—of course, they didn't know what you knew—and therefore you didn't have to do any more testing yourself, even though you got these alarming results. That is what you didn't do. You didn't do more tests. You didn't tell FEMA there is a problem. And you didn't take the action that I would think would be a responsible action of a responsible business.

Mr. SHEA. I would love to respond to that, sir. Sir, there is a difference here between testing and screening. There is a difference between unoccupied units and occupied units. We did unoccupied

unit screening to better be able to inform FEMA how to properly ventilate units. We also were utilizing some optional devices that we were using in the unoccupied screenings because we could generally screen for how indoor air quality changed. I would remind you there are many components, as Dr. McGeehin said, in indoor air. This unit would have been sensitive to many of them. So what we were able to do is we could advise FEMA better. Our counsel asked us to make sure what we said to FEMA was as accurate as possible. We tested the performance of the ventilation systems that we provided with the unit, plus some optional systems to help with sensitive individuals.

There is a difference between what we did with occupied units versus the screenings of unoccupied units.

Chairman WAXMAN. My time is over. I am just going to say it sounds like you handled it very carefully as a public relations and as a legal problem, but I think you had more of a responsibility to the health of the people that were living in your trailers.

Mr. Davis.

Mr. DAVIS OF VIRGINIA. I would yield my 5 minutes to Mr. Souder.

Mr. SOUDER. And I would ask the chairman to be generous if I go over just a little bit, as well.

First I want to welcome all of you as fellow Hoosiers and having huge facilities in my District and employing lots of people who are already hundreds losing their jobs because of the gas prices, the mileage restrictions, the ability to get vehicles that can tow. Ten percent of Americans of some sort of vehicle. Most are from northern Indiana and Congressman Donnelly and my Districts. It is the danger of how we do something like this is, as our guys try to meet these standards, try to follow whatever the Government says, you have inspectors on your sites, you just push these kind of jobs to China where they don't meet these kind of inspections, where there is no conscience, and we wonder why we lose American jobs.

It is incredibly frustrating. We all want to find out what the truth is.

Mr. Shea, wasn't FEMA at the plants all day?

Mr. SHEA. I am sorry, sir?

Mr. SOUDER. Weren't they at your facilities all day?

Mr. SHEA. Yes. During the course of our production, as I understand, because we were a direct manufacturer, they had an inspector in each Indiana plant every day receiving units as they came offline and inspecting them.

Mr. SOUDER. Without getting into confidential information, and I am not asking you to disclose this, but the type of test you did on these trailers, how expensive was it to take the desiccator test that you did that is not the gold standard, that has a wide variation of accuracy?

Mr. SHEA. This is a device that is called a formaldemeter. It is not a scientific tool. It is not really what they would call a desiccator test, which is another imprecise type of testing. This is a quick snatch method, and it is just a screening tool. If you look in the directions to the piece of equipment, it is a screening tool. It doesn't claim to be a testing tool. It tells you that there are other components that it absorbs.

Our individual wasn't experienced in using it. It did provide some benefit in terms of seeing how indoor air changes occurred, but it is certainly not testing, and we didn't employ that. And certainly at our plant location with FEMA inspectors there was no issue about that. It was never an issue with FEMA inspectors. This was during the time that we were producing these units.

Mr. SOUDER. Would this have been an expensive test for FEMA to conduct?

Mr. SHEA. Well, anybody could have used one of these devices, any organization. FEMA did OSHA testing in fall of 2005, so they were familiar with closed-up units, unoccupied units. They did more OSHA testing, I think the record shows, in March, late March, after this became an issue. I think those results are available. So they knew what closed-up, sealed-up units that had been cycled to 80 to 100 degrees of hot boxes would do. Any structure that was closed up, even a house that was closed up and sealed up and cycled to 80 to 100 degrees would have decreased indoor air quality. There is just no two ways about it.

Mr. SOUDER. Well, the scary thing about if we are not careful in hearings and we aren't trying to look at fundamental questions with accurate science, one of our challenges here is that I met with 9 of the 10 companies named in the early lawsuit total. They had the three complaints that you had talked about. Then the lawsuits started, and all of the sudden legal liability starts. Now you are being criticized for doing a very simple test that could have been done by the Government, and the question comes: what employer or company in America is going to expose themselves to voluntary cooperation if this is the end result, that the proliferation of suits all over America right now—you know, people say, I heard in Katrina, I read in the newspaper, I heard on TV, not on any science, as we are learning. The 390 parts per billion, we keep sliding between parts per million and parts per billion, don't have any standards. You are trying to cooperate. Instead, you get your head beat in.

Do you plan to ever deal with the Government again?

Mr. SHEA. Sir, this is an incredible quandary. We have seen a specification—it is not a standard—put forth by FEMA in their latest standards. It is 16 parts per billion. Of course, very recent studies with new technology show that this is within the range of human breath. This is within the range of normal human breath, what people normally breathe out from their normal metabolism, irrespective of what is in the air.

Well, how can a company, why would a company take on that kind of liability? It would be so easy for something to occur either naturally or from user sources that would double or triple this specification. This company would never take that liability on, sir.

Mr. SOUDER. Within the broad definitions of 5 minutes I have one more supplemental question. You have done FEMA before. It has been a significant part of your business.

Mr. SHEA. Yes. We have provided units through dealerships since 1992. FEMA came directly to us and asked us for a direct quotation and proposal at the beginning of this hurricane before the hurricane actually hit New Orleans.

Chairman WAXMAN. Thank you, Mr. Souder. Your time has expired.

Mr. Cummings.

Mr. CUMMINGS. Thank you very much, Mr. Chairman.

Mr. Shea, you know, I know the chairman referenced a letter from a lady in which she said, "There is an odor in my trailer that will not go away."

Mr. SOUDER. Mr. Chairman.

Mr. CUMMINGS. "It burns my eyes, and I am getting headaches every day. I have tried many things, but nothing seems to work. Please, please help me." You are familiar with that, are you not, Mr. Shea?

Mr. SHEA. It would be helpful for me to see the exact customer that you refer to, sir. That would refresh my memory.

Mr. CUMMINGS. Well, you heard the words. If that was your wife, would you be concerned about her living in a trailer?

Mr. SHEA. I can give you the letter that we responded to, sir, to FEMA. When we got that report and we communicated with FEMA, my recollection is it was with regard to a Mr. Reeser.

Mr. CUMMINGS. OK.

Mr. SHEA. Here is what we said, if I can quote.

Mr. CUMMINGS. Very briefly, because I have a lot of questions and a little bit of time.

Mr. SHEA. Yes, sir. "I do want to take the opportunity to reinforce our position previously communicated to FEMA that Gulf Stream is ready, willing, and able to work with FEMA with regard to any complaint, including sending a representative within 24 hours to work with your contractors to inspect, test . . ."——

Mr. CUMMINGS. Good.

Mr. SHEA [continuing]. "—or do whatever is reasonably necessary to . . "——

Mr. CUMMINGS. Mr. Shea, you are coming right where I want you to be, because I want to talk about some of your correspondence, not in addition to what you just read. I would like to share with you what Gulf Stream disclosed to FEMA—and I know you are familiar with this—related to formaldehyde in its travel trailers in May 2006. It has been referenced quite a bit here. And Gulf Stream sent a letter to FEMA and said, "We want to followup on our recent conversations regarding the travel trailers supplied to FEMA. We would like to reiterate our willingness to assist you in addressing any concerns about our products. Our informal testing has indicated formaldehyde levels of indoor ambient air of occupied trailers far below, for instance, the OSHA standard of .75 parts per million, 750 parts per billion. We are willing to share these informal test results with you and, as mentioned during our meeting, if FEMA wishes to conduct formal testing protocols on any designated units, we are willing to participate in that testing."

Now, you spent a lot of time, I am sure, in drafting that letter. The documents that we received show that you spent over a month getting the wording right. How do you interpret your own letter? And are you saying that your testing showed a formaldehyde problem, or are you saying that your testing did not show a problem?

Mr. SHEA. Well, sir, going back to the framework of the time, there were two regulatory standards that I was familiar with. One

was the OSHA permissible exposure level for workers that would be exposed for their working life; the other was the HUD target regulatory level. Those were the two. Those are the two now. There was one that came up in the press. That was referenced as a .1 EPA "safety level" by some activist groups. But when I looked that up it said above this level sensitive individuals may experience symptoms. It wasn't a safety level, and I did ask some experts did EPA have a standard. They told me that EPA didn't have an outdoor standard for formaldehyde at the time, it didn't have an indoor standard for formaldehyde at the time.

So in terms of how——

Mr. CUMMINGS. You understand that before you sent that letter that the CDC had said that they thought that the levels of 100 were dangerous? You knew that, right? You didn't know that? I see people shaking their heads behind you.

Mr. SHEA. I have no recollection of—the CDC came out with their interim report and took a position. The original ATSDR position was that after the EPA testing that was done in the fall was that .3 parts per million was acceptable. They changed that later, but that was well after this time, sir. That was in 2007. That was in, like, February 2007 after EPA did testing of unoccupied units in September 2006.

Mr. CUMMINGS. So this is not the record on April 24, 2006, Gulf Stream's outside counsel sent both Jim and Dan Shea a 1997 document created by the Consumer Product Safety Commission entitled, "An Update on Formaldehyde." The document included the following information: formaldehyde is a colorless, strong-smelling gas. When present in air at levels above .1 ppm it can cause watery eyes, burning sensations in the eyes and nose and throat, nausea, coughing, chest tightening, wheezing, sick skin rashes, and allergic reactions. You are saying that is not accurate? Is that what you are saying?

Mr. SHEA. That is the language that came off of the EPA sensitivity recommendation. As I recall, sir, that is for sensitive individuals. And we have always been concerned to help with any individuals that had sensitivities. We know that there are sensitive people, sir.

Mr. CUMMINGS. All right.

Chairman WAXMAN. Thank you, Mr. Cummings.

Mr. CUMMINGS. Thank you very much, Mr. Chairman.

Chairman WAXMAN. Your time has expired.

Mr. Burton.

Mr. BURTON. Thank you, Mr. Chairman.

This home test kit, this formaldemeter, how accurate is that?

Mr. SHEA. Well, sir, it varies. It can be up and down. if you sprayed an air freshener and then took a screening it would be eight parts per million sometimes. It is reactive to ethanol, methanol, phenol, all kinds of things. It is an indicator of air flows, ventilation, but in terms of absolute testing, nobody would accept it. NIOSH doesn't accept it. It is not acceptable in a court of law. Some people may be more accurate than others. Our individual wasn't well trained in this or trained in calibrating it.

Mr. BURTON. So it is an indicator, but it is not really scientific?

Mr. SHEA. It is an indicator that formaldehyde is likely present.

Mr. BURTON. Now, in these 11 units that were checked with the formaldemeter, there were four that were above 500, but the other seven were below the 500 level?

Mr. SHEA. That is correct, sir.

Mr. BURTON. But that wasn't scientific?

Mr. SHEA. No, it wasn't scientific. Of course, we recognize that if anybody had smoked a cigarette an hour before or cooked or something, that influences the level, but what our main thing was, these people were very happy. One person was described by Mr. Pullin as being ecstatic that he finally had a place where he could go to, a refuge, something that was air conditioned, a totally self-contained living unit, and everyone was happy. There were some people that were older people. There were some young children, toddler age. They were happy with their units. They were not complaining about their units. They were not experiencing symptoms.

We went back in that proximate time—Mr. Pullin did—to revisit with these people in that late April period before we asked FEMA to come in and talk to them further about these canvassing that we did.

Mr. BURTON. You know, I don't think you can answer this question, any of you, but if I took a HUD-produced house or HUD-funded house—and there are an awful lot of them around this country right now that are vacant—and you closed it up, and you left it closed in very hot weather for, say, a couple of weeks or longer, would the parts per billion be equivalent to what you saw in a mobile home, manufactured housing?

Mr. SHEA. I do know this, sir: any structure, if you close it up, seal it up, cycle the temperature to 80 to 100 degrees, you are going to have a reduction of indoor air quality. There will be higher levels of chemical constituents, especially if you have attached garage with a car in it. I just went to a lean building seminar. The presenter said one of the best things you could do for indoor air quality was to have a detached garage. So any structure, if you put it under these kind of conditions, is going to have decreased indoor air quality.

Mr. BURTON. And you used the kind of materials that are used in just about any kind of construction in these?

Mr. SHEA. The highest users of these composite wood products, like particle board, MDF, hardwood plywoods, if you look at the reports, most of it goes into the remodeling industry. If you go into these large remodeling stores, these products are stacked to the ceiling. So the RV industry and the manufacturing housing industry only use less than 1 percent of these kind of products.

Mr. BURTON. The point I am trying to make is you are not using anything out of the ordinary in producing these products; you are using what is normal in construction?

Mr. SHEA. These products are used in furniture making, cabinetry, home building.

Mr. BURTON. Let me just say I am going to yield to my colleague, Mr. Issa from California, but I just want to say I have known the Shea family probably for 30 years, and I know their business, and, Mr. Chairman, I want you to know they have impeccable credentials as far as conducting their business in an honorable way in Indiana. I don't represent that area, but I want you to know that I

don't think they would ever do anything intentionally to harm the health of any individual.

With that I yield to Mr. Issa.

Mr. ISSA. I thank the gentleman.

Mr. Bennett, how many people does your company employ typically?

Mr. BENNETT. Right now we employ approximately 100 people.

Mr. ISSA. About 100. And, Mr. Shea, how many would you have had at the peak of production for FEMA? How many people would you have employed?

Mr. SHEA. I would estimate about 2,000 people, sir.

Mr. ISSA. About 2,000. So we are looking at companies of 5,000, 3,000, 100, and 2,000, and I noticed that in the information that I received we only have two people that have made complaints, both about your company, Mr. Shea, and they seem to be about only one thing, which is the question about Norboard being made in China and that being the source of a lot of these problems. Earlier people talked about imported Chinese products. Do you know where Norboard is made? And do you know if it could be the cause of the problem?

Mr. SHEA. Norboard is a product that is made in Deposit, NY. It is an American product. It is made to what they call an ANSI standard, which is equivalent to the HUD standard for particle board. But we asked this company to provide testing documentation on their product, and their product actually tested well below the standard that they build to. It is actually about over 30 percent below the standard. And it is almost what the upcoming CARB standard is for MDF that is upcoming for 2009. It is very close to that. So this was good product, good American product, and I don't know what this individual was referring to relative to——

Chairman WAXMAN. The gentleman's time has expired. We will come back to you, Mr. Issa, in a minute.

Mr. Danny Davis.

Mr. DAVIS OF ILLINOIS. Thank you very much, Mr. Chairman.

Mr. Shea, let me try and make sure I understand your testimony. How many Katrina-related trailers did your company build and supply to FEMA during this process?

Mr. SHEA. Sir, we had two contracts. Each was for 25,000 units, sir.

Mr. DAVIS OF ILLINOIS. Did you actually build and supply or sell to FEMA those 25,000 units?

Mr. SHEA. Yes, we did, sir.

Mr. DAVIS OF ILLINOIS. Did I understand you to suggest or to say that prior to the CNN new report, that you had only heard of possibly three expressions of concern, one which turned out to be a faulty connection of a sewer line?

Mr. SHEA. Sir, I am not sure as far as the CNN report. The timeframe that I was referring to was a report that came out of Bay St. Louis on an individual that was in one of our units, and we contacted FEMA on that individual. They told us, because we wanted to assist or see what we could do, they said that they couldn't discuss it for privacy reasons with us, but that they had addressed his concerns by exchanging for a different trailer.

Now, I am not including that customer, sir, but——

Mr. DAVIS OF ILLINOIS. OK. But you had no information that would suggest that formaldehyde was a problem in any of these units?

Mr. SHEA. Before the report that came from Bay St. Louis, this had not been an issue that we had tried to deal with with agency FEMA units. Our travel trailers had not been this kind of concern, so this was surprising to us, very surprising to us when this became an issue in the State of Mississippi at that time.

Mr. DAVIS OF ILLINOIS. Thank you. Let me ask you, Mr. Liegl, how many trailers did your company supply to FEMA?

Mr. LIEGL. We supplied 5,000 to FEMA specs, not directly to FEMA but through a Government-approved purchaser, and so 5,000 to the FEMA specs, but we also know that FEMA had bought trailers of Forest River off of dealers' lots.

Mr. DAVIS OF ILLINOIS. Let me just ask, did I understand also that you were actually invited or there was some discussion that you could supply 35,000?

Mr. LIEGL. That is correct.

Mr. DAVIS OF VIRGINIA. And you decided not to do the 35?

Mr. LIEGL. That is also correct.

Mr. DAVIS OF VIRGINIA. Could you tell us why?

Mr. LIEGL. Well, No. 1, we couldn't. Doing what we were told to do by FEMA, they wanted our units to be built in the same standards that we build our typical RV, and so to do that we had to use the same plants, the same people, the same materials, etc. The most we could build was 5,000 in the time period they needed them.

Mr. DAVIS OF ILLINOIS. So you were afraid that you might have to compromise something if you were to attempt to take on that contract?

Mr. LIEGL. Yes, sir.

Mr. DAVIS OF ILLINOIS. The 5,000 that you actually built and sold, did you make any profit different than the profit that you probably would have made if you sold those to the Danny Davis Enterprises?

Mr. LIEGL. No. The margin of profit would have been about approximately the same what we made the year before and the years after.

Mr. DAVIS OF ILLINOIS. Let me ask each one of you gentleman if you would answer directly. Last week the CDC issued a report about the results of its testing, and ultimately ended up suggesting that people living in any of these trailers exceeding 500 parts per billion, that they actually ought to be moved out and that they ought to move out immediately. Let me ask if you agree with that statement, and beginning with you, Mr. Shea.

Mr. SHEA. Sir, I don't recall that 500—my understanding on the CDC was they really didn't define a level of when people should move out; they just recommended——

Mr. DAVIS OF ILLINOIS. OK. So you couldn't comment on the statement that I just made because you wouldn't be aware of it.

Let me go to the next gentleman.

Mr. BENNETT. I would have to say that until a standard is agreed upon, that is a difficult question to answer.

Mr. DAVIS OF ILLINOIS. All right. So it is difficult. Let me go to the next.

Mr. FENECH. Please ask the question again, sir, because I don't want to——

Mr. DAVIS OF ILLINOIS. Well, let me just ask this: if you purchased an apple and cannot eat it, do you believe that you ought to pay for it?

Mr. FENECH. Great question. No, I would probably not want to pay for that apple.

Mr. DAVIS OF ILLINOIS. Well, my point is this: that if there were trailers that people can't live in now, that FEMA has purchased, should the taxpayers be paying for those trailers that cannot be used for the purposes for which they were purchased.

I thank you, Mr. Chairman, and yield back the balance of my time.

Chairman WAXMAN. The gentleman's time has expired.

Mr. Issa.

Mr. ISSA. Thank you.

Mr. Davis, I would be interested to know whether or not we would make more money on your purchase than on FEMA's purchase. That could be a whole separate hearing.

Mr. DAVIS OF ILLINOIS. But I am selling apples.

Mr. ISSA. Well, and we don't know today, unfortunately, whether or not this is an example of 50,000, 125,000 apples being bought and we have a couple of bad apples. I have several questions, but I would want to make sure we understand here today there is no test going on in every one of these trailers in the field. There is no standard if there was a test. And CDC just told us that, in fact, they only looked at one item and there is no standard for what level we should move people out of these trailers or how much ventilation would be enough to reduce it, and they weren't familiar with the high levels inside fixed homes in these areas of the south, particularly Louisiana.

So, having said that, I am going to look at you four business people and I am going to try and—I am not saying provide you relief. I think you will provide that for yourself in due course. But lest you be the last victims of Katrina—let's just put it that way—today do any of you have a standard in front of you other than the proposed standard that would cause you to make your trailers different? In other words, has FEMA come back to you other than this adopting of 16 parts per billion and given you any new guidance on how to make trailers if, in fact, a hurricane hits today?

[No response.]

Mr. ISSA. I will take no as the answer. I think I saw a no from everyone.

Mr. Shea, in your case, speaking about trying to hit this level of parts per billion that is roughly equal to inhaling and exhaling and dramatically less than if one cat pees on the carpet, which would be far greater parts per billion just based on a kitty accident, the only thing you know of is something that could cause you to say no bid; is that correct? That if, in fact, 16 parts per billion becomes the standard, you are going to have to no-bid it because you can't meet that standard?

Mr. SHEA. No, sir, because even if you tested something, and where we produce in Indiana, the time you moved it to Louisiana, totally different atmospherics, much more humidity, much more heat on a constant basis, there is no way. And that doesn't even include how residents differ and their use.

Mr. ISSA. You know, I am an electronics manufacturer, so my background is one in which we have standards for absolutely everything, and I was the chairperson of the Standard and Trade Association, the Consumer Electronics Association, before I came to Congress. Now, you all four are, I believe, members of the trade association for travel trailers; is that correct?

Mr. SHEA. Yes.

Mr. BENNETT. Correct, sir.

Mr. FENECH. Yes.

Mr. LIEGL. Yes.

Mr. ISSA. OK. And is your association prepared to participate in standards setting if, in fact, the Government is willing to set standards?

Mr. SHEA. Yes.

Mr. BENNETT. Absolutely.

Mr. FENECH. Yes.

Mr. LIEGL. Yes.

Mr. ISSA. OK. Do you know if your association has reached out to try to have that engagement? Any one of you that wants to speak?

Mr. SHEA. I think that is very important to the industry, and they have said so. They are very interested in being able to have the kind of standard they can conform to. I am sure they will be leading the parade as attaining that standard.

Mr. ISSA. So, again, in the spirit of lest Katrina have one more set of victims, all of you are saying today that you do not have new standards on which to make trailers differently than you made them before and after Katrina, the only discussion of a new standard of 16 parts per billion is not achievable, and your association stands ready to work with, on a uniform basis, meeting these standards both for FEMA and for, as a matter of fact, the consumer public. Is that all correct?

Mr. SHEA. Absolutely.

Mr. BENNETT. Yes.

Mr. FENECH. Yes.

Mr. LIEGL. Yes.

Mr. ISSA. So we have hauled you all in here to talk about a standard that didn't exist, that you couldn't meet because it didn't exist, it doesn't exist today, and we are asking you to defend yourselves because you might have made a profit making trailers that in many cases were identical or actually were off-the-shelf trailers, because many of what FEMA bought were off-the-shelf trailers; is that correct?

Mr. SHEA. Correct.

Mr. BENNETT. Yes.

Mr. FENECH. Yes.

Mr. LIEGL. Yes.

Mr. ISSA. OK. And I yield the remainder of my time to Mr. Burton.

Mr. BURTON. I just want to ask, I was wondering if we could ask the EPA to test closed houses in this area down there to see what the parts per billion are in those houses compared to these motor homes that were there since Katrina. I think that would be a very interesting thing, and I would like to ask you, Mr. Chairman, if we could request that kind of a study.

Chairman WAXMAN. Well, I will certainly take it under submission, but certainly you are free to ask for any information you wish.

Mr. BURTON. I know, but you being chairman I think it would carry—I will co-request it with you, Mr. Chairman.

Chairman WAXMAN. The gentleman's time has expired.

Ms. Norton.

Ms. NORTON. Thank you, Mr. Chairman.

Mr. Shea, my question really goes to the duty of the manufacturer. We have spoken about FEMA here. You don't have to worry about FEMA. I am Chair of the subcommittee with jurisdiction over FEMA. This committee has, in addition, had FEMA before us way before we ever got to you over the past couple of years. My questions really go to the duty to disclose in a free democratic free market society when a business wants to avoid liability, when a business wants to remain in business, when a business wants to maintain its reputation with the Federal Government and with customers, generally. I am perplexed by your approach to the 35 unoccupied trailers.

I have a letter here from March 2006, a letter from Gulf Stream where Gulf Stream was testing 35 unoccupied trailers. Leave aside the controversy about now standard, what standard, these tests showed levels in some of these trailers well over 2,000 to 4,000 parts per billion, and I don't think there is much controversy about that level. By anyone's standards that is a dangerous standard, and I don't think that is subject to dispute or has been subject to dispute even here.

Now, Mr. Shea, you began testing in March, and FEMA, of course, was still in the process of activating its purchase of trailers. Indeed, after March 2006 when you were testing FEMA actually continued to activate trailers, thousands, which, of course, ended up in the Gulf with the results that are under scrutiny here today.

Let me ask you: did Gulf Stream provide FEMA with the vehicle identification numbers of the trailers that it had tested that had high levels of formaldehyde so that at the very least FEMA could ensure that those trailers were not distributed on the Gulf Coast?

Mr. SHEA. Well, there is various e-mails. I think if you look in the record you will see discussions between FEMA and e-mails between FEMA and Gulf Stream.

Ms. NORTON. Well, we have your letter, and your letter makes no reference to any results from the unoccupied trailers. Is it your testimony that you, in fact, told FEMA, e-mailed FEMA, wrote FEMA about the results in the 35 unoccupied trailers? Did you reveal these 2,000 to 4,000 parts per billion in the unoccupied trailers? I am simply trying to get whether you did or not.

Mr. SHEA. Well, we——

Ms. NORTON. Did you disclose this information or not?

Mr. SHEA. We didn't conclude that it was relevant, ma'am. We thought that it was irrelevant information.

Ms. NORTON. In what sense?

Mr. SHEA. Well, ma'am, we felt it was irrelevant information because, first of all, we provided information to FEMA in that letter relative to what our experience was with ventilation, what our experience was with looking at ventilation options for sensitive individuals. That——

Ms. NORTON. That is my point. You provided, indeed, in this letter you provided only the information that, of course, would reinforce the continuing purchase and activation of these trailers. I understand what you provided. I am asking you why you thought it was irrelevant——

Mr. SHEA. Yes, I would love to respond to that.

Ms. NORTON [continuing]. To disclose any information about the formaldehyde levels in the unoccupied trailers which you, yourself, were at that moment testing. Why was that irrelevant?

Mr. SHEA. First of all, FEMA had information on unoccupied units, ma'am. They had done OSHA testing and——

Ms. NORTON. I am talking about your tests. You just said irrelevant.

Mr. SHEA. Yes, we——

Ms. NORTON. And I want to know why it is irrelevant.

Mr. SHEA. It is irrelevant, ma'am, because FEMA knew about closed-up, tightened-up, heated-up units, what they would have been testing at, because they had OSHA-certified persons that went out and did testing well before this.

Ms. NORTON. This was unoccupied trailers about to be distributed to actual human beings on the Gulf Coast. If you had to do it over again, would you disclose the information on the 35 unoccupied trailers to FEMA?

Mr. SHEA. Anything that would have been helpful to public health in any kind of retrospect on this, we would have loved to have been able to shed more light on. We support public health. But this is looking at it in a retrospective, and our perspective at the time was——

Ms. NORTON. Well, you haven't been able to tell us why it was irrelevant. Indeed, you testified that in retrospect, if I could conclude, in retrospect this could have been helpful to maintain health. And, you know, my main concern here is not so much with what appears to be a cover-up, at least of this information, but with whether or not the companies have learned anything from this experience. I will try to conclude that your first answer about irrelevant is not your final answer, and that if you had to do it over again perhaps it should have been disclosed. That is giving you the best veneer I can on your answer.

I yield back the balance of my time.

Chairman WAXMAN. The gentlelady's time has expired.

Mr. Souder.

Mr. SOUDER. Thank you, Mr. Chairman. I have a couple of points that I want to make, but I want to followup there.

Mr. Shea, it was not a scientific test; it was a snapshot, and it was a snapshot of sealed vehicles which could test at any different range. In retrospect, perhaps it would have been helpful for CDC to know, but, in fact, they probably wouldn't have had it be rel-

evant, either, other than potentially to do more testing, because the test wasn't accurate. Wasn't that what you were trying to say?

Mr. SHEA. Yes. And, if you will remember, the EPA did testing, certified testing, several months after we would have done these screenings, in September, and they showed levels above these levels, equal to these levels that were shown by the screenings, which, of course, picked up all kinds of other chemical constituents. But it wasn't treated by Government as being relevant. They didn't say because we have these closed-up, heated-up, sealed-up units at these levels. They didn't come back and say, Well, everybody needs to be evacuated from units.

Mr. SOUDER. Because you have certainly said air them out.

Mr. SHEA. They said air them out, and the ATSDR did a report in February 2007. It wasn't until occupied unit testing was done 18 months after this approximately letter that Ms. Norton is referring to that there was a move to what the CDC said, quickly relocate residents. It wasn't after this EPA testing that was done well before that showed results in these sealed-up units.

Mr. SOUDER. I wanted to make a comment, and if any of you want to add to this, there is kind of a misunderstanding in applying the type of industry that has developed predominantly in Elkhart County from other industry associations and why the industry hasn't been more proactive. It is basically a startup industry that was a collection of small companies.

Mr. Liegl, when you started what size was your company?

Mr. LIEGL. Well, when we began it was in 1996 and I began with 20, 30 people.

Mr. SOUDER. And Forest River is now one of the biggest. How many acquisitions would you say you have made in the last 24 months?

Mr. LIEGL. Acquisitions?

Mr. SOUDER. Yes. In other words, picking up other facilities.

Mr. LIEGL. We primarily grew from being organically grown and not through acquisition.

Mr. SOUDER. Mr. Fenech, Keystone came out of other companies in the area and was one of the most dynamic young companies. Four now has bought a whole number of companies in the District, including yours. Mr. Bennett's historically has been more typical, fairly small company that, as Government pressure comes in, and as we have more accountability, one of the byproducts of this is it is getting harder and harder for somebody to start a company of 90 employees or harder and harder to do what Keystone did without the capital, meeting all the different standards, and there are consequences to our actions. But in the ability of the association to fund their own R&D, what we have seen is a consolidation of this industry into larger companies, because, as you have to do this, you respond differently.

One of the great entrepreneurial counties—Elkhart County is the highest percent manufacturing in America, one of the last percent places.

One other thing that has come up, I have seen it in media reports, are shuttered buildings. I know another company which is not this, but Utilimaster, when I first visited them, sometimes operating in two buildings and sometimes they are operating in nine-

teen buildings, because buildings get shuttered because things are cyclical. That would be the wide range.

Mr. Shea is a little different, because your company historically has dealt more with FEMA. Has it always been significant, as opposed to Mr. Liegl is about 5 percent of yours? Is that what the trailers——

Mr. LIEGL. Correct.

Mr. SOUDER. Mr. Shea, what percent of FEMA would be a standard and what is your range that the green facilities tend to be extra cyclical? Could you kind of give an idea of how you go up and down because of the nature of your business is somewhat different than some of the others?

Mr. SHEA. Well, some years we provided 500 units to FEMA, some years we provided 7,000 units to FEMA for hurricane relief. This was the largest number we ever produced. Obviously, since that time the industry has gone downward in terms of its overall production. We have had to adjust to that. This is going to be a very difficult year for the industry. I have heard five or six companies already go out of business, long-term companies, and some of the industry segments are down 56 percent. So we do have to make that kind of adjustment, but our utmost thing is to try to preserve manufacturing jobs and do everything we can to do that.

Mr. SOUDER. I have just a quick followup to that. The 2,000 figure was used. What would be the range of your employment?

Mr. SHEA. It could range between 1,000 and 2,000.

Mr. SOUDER. Thank you.

Chairman WAXMAN. Mr. Jordan.

Mr. JORDAN. I thank the chairman.

I want to thank the panel, too, for coming. I represent the Fourth District of Ohio. We have Airstream, part of Four Industries, as well, in our District; Norcold, which I assume is a supplier for some of you guys. We do appreciate your being here and your industry.

I thought Mr. Issa did a nice summary when we talked about the standards. You talk about there is no test, there is no standard. In fact, in the previous panel Dr. McGeehin even said that, I think, if I got his quote right, the CDC is not a standards-setting agency. So it is a tough situation that you guys are having to deal with here.

I wanted to go to, I think, Mr. Liegl's reference. I didn't catch all your opening statements, but Mr. Liegl in his opening statement talked about his assistance to FEMA in past disasters. I know Mr. Shea, as well, with Gulf Stream has done that.

Mr. Bennett and Mr. Fenech, have you guys also assisted FEMA in past hurricanes or past disasters?

Mr. FENECH. We have never had a contract with FEMA, no. There have been some products that we have supplied, but it has been through the dealers.

Mr. JORDAN. Mr. Bennett.

Mr. BENNETT. We have never had a contract directly with FEMA.

Mr. JORDAN. OK. So just Gulf Stream and Forest River. In your past dealings with FEMA, has there ever been problems? Have you had any complaints? Have things gone fine?

Mr. FENECH. Could I go back? We did not have a direct contract with FEMA.

Mr. JORDAN. You sold off your lots?

Mr. FENECH. No. We sold to American Catastrophe, which was an approved supplier.

Mr. JORDAN. OK.

Mr. FENECH. So it wasn't a direct deal with FEMA.

Mr. JORDAN. OK. But in your past dealings where your units have assisted FEMA in dealing with disaster relief, have there been any problems with those units?

Mr. FENECH. In the past, absolutely none.

Mr. JORDAN. Mr. Shea.

Mr. SHEA. We have had a very excellent relationship with FEMA over the years. We have had a laudatory letters relative to our performance, and we have worked closely with them.

Mr. JORDAN. And the units that went out with Katrina and Hurricane Rita, the units that were sold there, is it accurate to say they were the exact same units that you would send to your dealers and your dealers would sell to any citizen or any family who came to purchase those?

Mr. FENECH. Yes, sir.

Mr. JORDAN. Mr. Liegl.

Mr. LIEGL. Definitely.

Mr. JORDAN. Mr. Shea, same units?

Mr. SHEA. We were the only manufacturer that was approved for rail transport, which was important to FEMA, and I think they shipped about 25,000 of our units by rail, so our units do have differences beyond what would be normal for our regular production. There are some differences, but all the products use composite wood products like particle board and MDF and hardwood plywood. I mean, that is very much the same for all of them.

Mr. JORDAN. And then Mr. Bennett and Mr. Fenech, same units that were part of Katrina, same units you would sell to any other customer?

Mr. FENECH. Absolutely.

Mr. JORDAN. OK. Mr. Chairman, I yield back the balance of my time.

Chairman WAXMAN. Thank you very much.

That concludes the questioning by the members of the committee, and I do want to recognize Mr. Donnelly at this time.

Mr. DONNELLY. I want to thank the chairman again for having the grace to let me be present at this hearing. And I want to welcome all of the gentlemen here for participating. There are headquarters located in our District. You have facilities located in our District. I think the other story that is here is the story of the number of families of the Gulf Coast region who were able to receive shelter from your products when they had nowhere else to put their head at night and who, because of the workers of your comps, were able to have their family have a place to stay and be able to shower and to eat and have somewhere that they could put their family unit back together.

And that the workers of your companies, the other untold story is the overtime work that was put in on a constant basis, the weekend work that was done because of the commitment of your workers and your companies to the people who live, their fellow Americans, down in the Gulf region.

I travel the highways of our District, as you know, and day after day almost every 2 or 3 minutes you could see another unit heading down to the Gulf region for another family.

So the one question I have is for you, Mr. Shea, and that is that the Government and scientific agencies have not seemed to be able to successfully come to a consensus as to a formaldehyde level for your products. In that absence, are you voluntarily implementing any standards, and what would they be?

Mr. SHEA. Yes, Congressman. In spring of 2007 we started implementing products that were equivalent to the upcoming CARB standards for product emissions that go into effect in 2009, and beyond that we have moved now to actually 2011 compliant products. So what we are producing now is 2½ years in front of the marketplace, as far as I know. That is where we like to be. We like to be ahead of the curve. We have been ahead of the curve in terms of using LFU products starting in the 1990's. And we also, to my knowledge, are the only manufacturer who has a third party organization that ensures our material acquisition, our supply processes, and does verification testing on products that we receive from vendors.

Mr. DONNELLY. Thank you very much.

I have no other questions, Mr. Chairman.

Chairman WAXMAN. Thank you very much, Mr. Donnelly.

Some Members wish a second round, and I see Mr. Welch has just arrived and he hasn't done his first round, but let me recognize myself and then we will get to Mr. Welch down the road.

Last week CDC issued this report and we heard from CDC this morning in their testimony, and they said to us that levels of formaldehyde were elevated in these trailers, and some exceeded 500 parts per billion, which is the level that OSHA requires mandatory medical monitoring. It is that high so that they require medical monitoring. As a result of its testing, CDC recommended everyone currently living in these trailers be evacuated immediately, not just some residents, but all of them. CDC said that Government should prioritize its evacuation first to take out the elderly and children, those who are most sensitive, but then eventually get everybody out.

The witnesses on this panel that is before us right now representing the companies that sold these trailers, I would like to ask each of you, Do you agree with this Federal Government decision to evacuate these residents from your trailers if they exceed this 500 parts per billion? Mr. Shea, do you agree with that statement from CDC and recommendation?

Mr. SHEA. CDC recommended that these persons be quickly relocated despite the levels. The levels were as low as three parts per billion, sir, and they ranged upwards——

Chairman WAXMAN. No, that is not my question. My question is we are being told that if people are living in trailers that exceed 500 parts per billion, that they be put into some other trailer, that they be relocated. Do you disagree with that?

Mr. SHEA. I think that there should be all consideration for the safety of the persons. There are some statistical outlookers. There are very few of the units that I know were at that level. They average——

Chairman WAXMAN. But if they are at that level, do you agree with that recommendation? Yes or no?

Mr. SHEA. Above that level, with the concerns that are being registered by the CDC, I would agree for public health.

Chairman WAXMAN. OK. How about you, Mr. Bennett?

Mr. BENNETT. I would agree.

Chairman WAXMAN. Mr. Fenech.

Mr. FENECH. I think that there are really some unusual circumstances in Louisiana, and absolutely. I mean, if it is unsafe they should be moved out.

Chairman WAXMAN. Mr. Liegl.

Mr. LIEGL. Yes, sir.

Chairman WAXMAN. OK. Now, since you agree with this statement, let me ask you this: why should the Federal Government have to pay you for these trailers? The American taxpayers spent $2 billion in trailers that can't be used. Shouldn't we get that money back if those trailers exceed those very high levels?

I don't see any of you jumping in to say yes.

Mr. SHEA. I would answer that question, sir. CDC testing totally depends on use. Anybody that would have smoked a cigarette or otherwise used the unit, it wasn't a protocol that was universal. They were totally dependent on what people did, whether they cooked fish, whether they smoked a cigarette, whether they did other things that raised these levels higher.

We are in favor not just of a standard, but we need also a protocol of testing to follow so that we know what we are comparing it to.

Chairman WAXMAN. Let me interrupt you. Two years ago you tested trailers and found that 40 percent of them exceeded that level. Mr. Fenech, CDC found that a trailer from your company, Keystone RV, had formaldehyde exposures of 480 parts per billion. Do you think that is safe?

Mr. FENECH. Based on the information that we are hearing today, you would say that no, that doesn't sound like it is a safe level.

Chairman WAXMAN. OK.

Mr. FENECH. Please let me complete my thought, if I might. But the implication then is that it is all the result of the way the trailer was built, and that I don't agree with, to answer your question about the buy-back.

Chairman WAXMAN. But you don't think it is safe.

Mr. FENECH. I am not a scientist.

Chairman WAXMAN. Let me ask Mr. Bennett the question. CDC found that a trailer from your company, Pilgrim International, had 520 parts per billion. Do you think that is safe for people to live in?

Mr. BENNETT. I would have to state that this is long after the fact and at the time we built these units we had no standard to go by. We were building them the same way we build trailers, thousands of trailers. We had no reason to believe that these trailers were——

Chairman WAXMAN. But you don't think it is safe now.

Mr. Shea, you are the chairman of Gulf Stream company. You provided the most trailers to FEMA. Your company was paid over

a half billion dollars. CDC found that one of your trailers had formaldehyde levels 590, the highest level of any of the trailers that it examined.

The point that I am getting to is I don't think that a manufacturer of any product should say, well, if there is no standard I don't have to meet it. I think you have an obligation to try to find out if your product is going to harm people. I think that is just the responsibility of any manufacturer that sells a product, no matter what it is, whether it is a toy or a trailer. When we hear from CDC that everyone living in these trailers at that level should be evacuated as soon as possible, nobody should live in those trailers with formaldehyde that high, it sounds like the companies who sold these trailers are not willing to say that they have some responsibility because there was no standard. I just don't accept that argument.

My time has expired. Who wishes to be recognized? Mr. Bilbray.

Mr. BILBRAY. Yes, Mr. Chairman.

Gentlemen, this whole issue sort of is interesting how it has come around. As the chairman knows, I served on the Air Resources Board in California, and we had major concerns about indoor pollution exposures. In fact, as far as I know right now in the 1990's we were looking at a different exposure, and that was the exposure caused by formaldehyde emissions from new purchased vehicles, new manufactured vehicles. I question, Does anybody know what the formaldehyde exposure is on a new automobile in the United States left in the noonday sun for a few hours?

[No response.]

Mr. BILBRAY. And is there a Federal standard of maximum exposure for new automobiles?

[No response.]

Mr. BILBRAY. I would say, as far as I know, no, there isn't. And it is a concern and has been a concern of the Air Resources Board since the late 1980's. But do we hold automobile manufacturers responsible for that exposure and do we now open up the issue that automobile manufacturers should be held accountable for any exposure over a certain limit to new car purchasers, because I haven't bought a new car in a long time and, frankly, that new car smell is something that people talk about. But at the Air Resources Board we were addressing it.

My question is this: the formaldehyde emissions in these trailers—and in my family I was in Mississippi. I had a family home damaged in Mississippi. I saw the trailers coming in. The manufacturing products that were put in these trailers, are they products that are available in the open market at any Home Depot, at any lumber yard, or are these unique particle board and materials that are emitting formaldehyde? Gentlemen?

Mr. FENECH. I would be happy to answer that. It is off-the-shelf, standard stuff that is used every day in house building for all intents and purposes. Maybe we might get a different thickness of that material versus the standard half-inch versus we might get three-eighths, but it is off-the-shelf material.

Mr. BILBRAY. Anyone knows when the testing was done, was there any mitigation done to new construction exposed to the southern sun basically caused more aggravated emissions coming

out of these particle board and other products, just like the new automobile left in the sun? In these records, what kind of application? How old were the units? And what was the parameters with which the tests were made that came up with these high numbers? Do you guys have any idea of what kind of parameters the Sierra Club used in doing these tests?

Chairman WAXMAN. You said the Sierra Club.

Mr. BILBRAY. Well, the data I had was that the Sierra Club felt there were evaluations and concerns about the exposure, Mr. Chairman. Am I wrong on that? The Sierra Club didn't have——

Chairman WAXMAN. I am misinformed, and I am sorry to have jumped in. I guess the Sierra Club did some very preliminary, early studies.

Mr. BILBRAY. And raised the concerns?

Chairman WAXMAN. Yes. The gentleman's question is based on an accurate statement.

Mr. BILBRAY. There were tests done by the Sierra Club and raised these concerns. And the testing done, the big question that is there is do we now go to all construction material and start addressing the issue of formaldehyde in all construction material, and is that the way we could reduce this exposure, and basically say particle board may be outlawed in the United States or may not be used in construction where you have the potential for indoor pollution, which ARB in California has been talking about for over a decade.

Go ahead, sir.

Mr. SHEA. Yes, CARB is implementing, as I mentioned earlier, in 2009 new product standards which they say are the most stringent in the world. And yes, there is going to be standards certainly for our industry in using these common wood products. They need to be applied to home building, remodeling, apartments, furniture. Everyone needs to be on the same, because it is more difficult to ensure what products you are getting when there is all kinds of different products out there, so it would be helpful to have a national standard for these kinds of products.

Mr. BILBRAY. OK. And remember, too, that the use of this particle board has actually been encouraged due to recycling of waste products from lumber activity so that waste products that would normally have been burned or thrown away are now recycled and put into this stream to be able to use it as construction material rather than using virgin material and going down and cutting down more trees. Is that fair to say that this is how we ended up with so much particle board?

Mr. SHEA. Yes, sir. There is a product that came into play well after our products were created. It is called environmentally preferable product. It has special standards, and they are low formaldehyde, but to be an environmentally preferable product it has to be a sustainable product and taken from the kinds of products you are talking about. In a lot of ways it is a green product.

Mr. BILBRAY. Mr. Chairman, I would just ask that when we look for a minimum standard here for exposure in a travel trailer which really does not apply to the mobile home because the exposure rate was assumed to be different, and I think there is a legitimate argument there that maybe we need to look at our own regs. But again,

just as we did with medical implants and stuff, there has really got to be a line drawn here of what is the exposure or what is the responsibility of one person as opposed to another and where the source of the formaldehyde came from, and was it reasonable for somebody to feel that generally available construction material that is used universally across the construction industries in many different fields was somehow not appropriate at this location.

I think that is a debate, but I think there is a degree of back seat driving here, hindsight 20/20 that it is not a trailer that was newly constructed that was in Minnesota during the winter where there might not have been any exposure at all. It happened to be a brand new trailer that was produced and then put into the sun in Mississippi and Louisiana in the middle of August, which really changes the whole dynamics there. That real-life application is something that we know now post-script, but to perceive that was going to be a problem somewhere in the future I think is really second-guessing people to an extreme, especially with the fact that I still would say why are new automobiles exempt from the environmental air pollution exemption except for the fact that they are in the same clause here.

I say publicly if you own a new car don't jump into it after it has been sitting in the sun. Roll the windows down and let it air out, unless you want to get a good dose of formaldehyde. That is something that I think the consumers need to talk about back and forth. But we ought to be talking about that before the incident rather than coming back now and pointing fingers after the incident.

I yield back, Mr. Chairman.

Chairman WAXMAN. Thank you, Mr. Bilbray.

Mr. Welch.

Mr. WELCH. I thank you, Mr. Chairman.

Mr. Shea, I want to ask you a little bit about a CNN story. In April 2006 I understand that Gulf Stream became aware that CNN was going to be doing as story on formaldehyde in FEMA trailers. You are familiar with that?

Mr. SHEA. Yes, I recollect that, sir.

Mr. WELCH. Well, it was a big deal. This was going to go to the heart of the quality of the trailers and whether people in your trailers were getting sick, right?

Mr. SHEA. Sir, I expressed earlier—I don't know if you were here—the experiences that we had with several complainants.

Mr. WELCH. Well, let me proceed here. I am saying the obvious here. As a company, you obviously want to defend the product that you put out, right? This is going to be a story raising questions about it, you are going to take that story seriously and prepare for it, right?

Mr. SHEA. As soon as the initial story came out in Bay St. Louis in mid-March, we were very much concerned with the story and the issue. Certainly.

Mr. WELCH. So Gulf Stream, your company, sent a statement to CNN in April 2006 about formaldehyde, where it said, and we will put this up on the board if we can, "We are not aware of any complaints of illness from our many customers of Cavalier travel trailers over the years, including travel trailers provided under our contracts with FEMA." Did your company make that statement?

Mr. SHEA. And we are speaking retrospectively prior to the March issue when it started in March. We were talking about our experience with Florida hurricanes, and we had been building these since 1992, if you recall.

Mr. WELCH. Did your company make that statement?

Mr. SHEA. We did make that statement, yes, sir.

Mr. WELCH. And did you make it in April 2006?

Mr. SHEA. It was made in April 2006.

Mr. WELCH. All right. So is it fair to conclude that any listener would hear your statement as asserting that your company was aware of no complaints prior to the issuance of that statement?

Mr. SHEA. Our intent with the statement was to describe our history of experience with this prior to this issue coming about from Bay St. Louis in mid-March. That was our intent, sir.

Mr. WELCH. Let's use English here. You made a statement in April, and as of that date I assume that you vouch for the integrity of the statement.

Mr. SHEA. Sir, there were allegations. We are not even familiar with the medical aspects of any of these complaints.

Mr. WELCH. So what you meant to say is that you are unaware of any substantiated medical complaints?

Mr. SHEA. We were aware of allegations; we were unaware of substantiated medical complaints, and we were speaking prior to the——

Mr. WELCH. So why, if——

Mr. SHEA. Previous experience in previous years, sir.

Mr. WELCH. So why didn't you say you heard of allegations but not "substantiated medical complaints?"

Mr. SHEA. Sir, we were trying to be as expressive of our history of dealing with this, and we thought that was what was important, but we were addressing the few complaints that we received, sir, and the record shows that in that period we had——

Mr. WELCH. Let me tell you what the record does show. On March 20 of 2006 on your Gulf Stream interactive Web site, you received a statement, you, Gulf Stream, and this is before you issued the no complaint statement, and I think we can get that up here, as well "There is an odor in my trailer that will not go away. It burns my eyes and I am getting headaches every day. I have tried many things, but nothing seems to work. Please, please help me."

Now, were you able to say that you had received no complaints because this did not come with a medical certificate?

Mr. SHEA. Every complaint that we received, sir, we investigated, we responded to, we asked persons if we could assist them.

Mr. WELCH. That is not the question I am asking. I mean, I asked you how you square that statement, your statement to CNN, "We are not aware of any complaints of illness," you made in April 2006 with a statement from a customer on a Web site that was a complaint.

Mr. SHEA. Sir, we received three complaints during that period. We addressed all of them. We were proactive on them. We asked FEMA to assist on any complaints they had. And we were——

Mr. WELCH. I don't want to be difficult, but——

Mr. SHEA. I don't want to be difficult, either, sir.

Mr. WELCH. Had you received any complaints before April 2006 when you issued your statement to CNN that you had no complaints?

Mr. SHEA. The complaints related to this matter that we received were two for that period.

Mr. WELCH. So the answer to my question is yes, you had received complaints prior to April, but you told CNN you had no complaints, correct?

Mr. SHEA. We were speaking of our history with FEMA as a program, sir.

Mr. WELCH. And that is a convenient way of saying that is the justification for saying something that was untrue.

Mr. SHEA. Sir, I believe we have been very truthful in everything that we have done and what we have presented here today.

Mr. WELCH. I will yield the balance of my time.

Chairman WAXMAN. The gentleman's time has expired.

Mr. Issa.

Mr. ISSA. Thank you, Mr. Chairman.

Mr. Liegl, I think I will switch to you and give Mr. Shea a bit of a break here. The chairman earlier was talking in terms of shouldn't people get their money back, shouldn't the Government not pay, and so on. And I would like to set the record straight, as having been a manufacturer, myself. All of your companies—I will ask you to answer for anyone, unless they want to pipe in, in particular—all of your companies are subject to various State lemon laws, right?

Mr. LIEGL. Yes, sir.

Mr. ISSA. Plus, you all have networks of dealer distributors, right?

Mr. LIEGL. Yes. Correct.

Mr. ISSA. Now, if a customer is dissatisfied, and particularly if the customer either litigates or comes in with multiple valid complaints, if the distributor sees a problem they are going to call you up and say take this lemon back, repair or replace it, right?

Mr. LIEGL. I'd say that is correct.

Mr. ISSA. OK. So the industry you are in, including the trade association norms for this industry, say if you make a product which is substantially defective, such as while it was on the trip to its destination somebody let it get soaked in water, or anything else that causes it to be materially different than the 10,000 other ones produced the same year, you take them back, you repair or replace them, you make them right; is that correct?

Mr. LIEGL. That is correct.

Mr. ISSA. And that is true of most of the sort of Elkhart group, if you will, of travel trailer makers. So when FEMA started having these problems, was there any doubt in any of your mind that if any of your trailers had material or workmanship failures in your design or in the materials you chose or in the work that your people did, that you would make it right by repairing or replacing it? Was there any doubt in your mind that you would do that?

Mr. LIEGL. I believe we would have.

Mr. ISSA. OK. Has FEMA ever come to you and said, Take back this trailer, it is defective in work that you did?

Mr. LIEGL. No, sir. Never.

Mr. ISSA. OK. Now, you have evaluated trailers that had a myriad of problems that have been used and you were part of that evaluation of why does it have this level or why did mold produce, and so on, and so you are familiar with trailers that had a year or two down the road and have problems, right?

Mr. LIEGL. Correct.

Mr. ISSA. OK. So you have cooperated with FEMA, the Government agency that you sold to. You would take back the products if they were defective in material or workmanship, and, in fact, you have not been asked to nor have you been given a failure or any part of your spec or your material workmanship; is that correct?

Mr. LIEGL. If it was our problem, we definitely would stand behind it.

Mr. ISSA. OK. And I would like just a nod. All the rest of you agree?

[No audible response.]

Mr. ISSA. So the norm in the industry, particularly when you are making something that feeds into State lemon laws and so on, as these things do, the norm is you make it right, you use your distributor network, your dealer networks to make it right if it is in the field without bringing it back. And, in fact, even though we are having this hearing today and we are talking about people suffering and so on—which I am not disputing that people have had health problems while living in these trailers, but in no way, shape, or form has the Government come to you and said you did this wrong as of today? No allegations against any of the four of you other than what you heard from the dias here today?

Mr. SHEA. Correct.

Mr. BENNETT. That is correct.

Mr. FENECH. Correct.

Mr. LIEGL. Right.

Mr. SHEA. OK. I think, Mr. Chairman, that makes the case that these are not the wrongdoers. Government may very well have failed the people of Louisiana and Mississippi. They may be continuing to fail them by not setting standards for the travel trailers or living accommodations, by not having ongoing testing. That may all be very true. Certainly, as a Californian, you and I share the leading edge of air quality that California is known for. But none of that is here today.

So I am not defending anyone, but I would like to thank all four of you for coming here today, for testifying honestly, and, in fact, for the fact that nothing has been said here that causes you to have done anything wrong. You may have tested and come up with high or low or different levels, but, again, as we heard from the CDC, these are all things we would like to do but Government, as of today, hasn't done it.

So, Mr. Chairman, since we are the Government Oversight and Reform committee, now that we have, I think, completed most of our oversight, I would hope that we would join on a bipartisan basis to do the reform of making sure that the Government agencies responsible for air quality, whether it is in manufactured items or in the air, itself, do their job and set appropriate standards and testing procedures so that we don't again haul in four CEOs of companies who, as of today, have not had one product returned as

defective or somehow inappropriate to the design, and rather make sure that we have standards for the next one so that these four will competitively bid on a product that would be improved once we decide what improved means.

So, Mr. Chairman, I thank you for holding this hearing, but I do very strongly hope that on a bipartisan basis we will do that second leg and ensure that we set standards that people can manufacture to.

With that I thank you and yield back.

Chairman WAXMAN. Thank you, Mr. Issa.

I want to ask Mr. Burton and Mr. Souder if you wish to have a second round?

Mr. BURTON. Yes, I want one.

Chairman WAXMAN. OK. Mr. Burton.

Mr. BURTON. I want to read to you what it says regarding the parts per billion and what HUD sets as a target. It says, "HUD set a target of 400 parts per billion for indoor ambient air in manufactured homes. HUD's indoor ambient air target guideline of 400 parts per billion is based on component standards for plywood and particle board.

In the unoccupied units testing revealed baseline formaldehyde levels were at 1,040 parts per billion, but fell to an average of 390 when the air conditioner was turned on. The averages fell even lower to 90 parts per billion when the windows were opened. The baseline average is probably attributable to the fact that unoccupied trailers were sealed up in storage, they were in the sun, and had little or no air conditioning or exiting. In all occupied units, the average level was 77 parts per billion and 81 parts per billion for travel trailers specifically."

I kind of am disappointed that we have you four here beating up on you, because I don't think you have done anything wrong. You have used standard materials off the shelf that is used in any kind of home construction or remodeling. I have had it done in my house. The location of the mobile homes in question was in an area that was extremely hot. They were sealed up and nobody was in them, and so when somebody went in them obviously the parts per billion would be much, much higher and it would take a while for them to cool off. And if they didn't open the windows, it would probably take even longer for them to get all the parts per billion down to where they should be.

Then you have to take into consideration how the occupants lived, if they had a dog in the house, if they bought additional furniture or different kinds of other things that might have formaldehyde in them. Did they smoke? How did they cook? Did they like higher temperatures in their house or lower temperatures in their house? There is all kinds of imponderables that you have to take into consideration when you are talking about the parts per billion.

You know, in all of our houses we have carpet, we have furniture, we have construction material that you use in your products. And I am going to go home and try to find out how much I have in my house, and when I exercise downstairs where I have it all closed up I am going to open the doors because I am concerned about my health.

I just think, you know, there is eight million of these units in use around the country, very, very few complaints, if any, and I just think for us to call you in here and pound on you and infer that you are lying about your products and everything, I think is just unconscionable, and I want to thank you for being here, for being so forthright, and for providing an industry that helps people when they are in need and suffering like they did in Florida during the hurricanes and like they have done in places like Katrina in the south on the Gulf.

Obviously, the chairman has a right to call a hearing on almost anything, but I am disappointed in much of the questioning that has gone on today, because it questions your integrity, and I don't think it should have been done.

With that, I yield back.

Chairman WAXMAN. Mr. Souder.

Mr. SOUDER. Is Mr. Welch going to ask any more questions?

Chairman WAXMAN. Why don't you just go ahead and take your second round?

Mr. SOUDER. I would like to hear what other questions are before. I know the chairman has a right to summarize, but if Mr. Welch has additional questions I would like to reserve.

Chairman WAXMAN. Let me ask you this. If I make a concluding statement, do you want to make a concluding statement?

Mr. SOUDER. You get to make the concluding statement. I wanted to know if Mr. Welch had another round.

Chairman WAXMAN. Do you wish to be recognized at this time?

Mr. WELCH. No.

Chairman WAXMAN. OK.

Mr. SOUDER. OK. I will just make my comments.

Mr. WELCH. Thank you.

Chairman WAXMAN. So we will both make concluding statements?

Mr. SOUDER. Yes.

Chairman WAXMAN. OK.

Mr. SOUDER. Do you want me to go first?

Chairman WAXMAN. Whatever you want.

Mr. SOUDER. Well, you are the chairman. You have a right to summarize. I just wanted to see whether you were going first.

Chairman WAXMAN. Why don't you wait and hear what I have to say and you will have the last word about the whole thing.

First of all, I want to ask unanimous consent that the staffs have discussed the release of documents and have reached a mutual understanding and so I ask unanimous consent that these documents be part of the record.

Mr. SOUDER. Reserving the right to object, I merely want to say that, while I have some concerns, I really appreciate the majority working with us. I will withdraw my objection.

Chairman WAXMAN. OK. Thank you.

This is our second hearing on this issue of formaldehyde in these trailers. I thought it was the second hearing of the Congress, but it turned out that during the course of today's hearing we got a phone call, and that phone call was from a staff person who worked for this committee in 1981, and he told us there was a hearing at that time on the question of formaldehyde in trailers, and at that

time, at the conclusion of the hearing the Members of Congress said to the FEMA and to HUD and to the Consumer Product Safety Commission and OSHA they ought to set a standard. They ought to set a standard for formaldehyde levels in trailers. That was 1981.

So I agree with my Republican colleagues when they say this is a failure of Government. Government should have set standards. Government should have protected the public from the dangers from formaldehyde, and the Government failed. But I also think this is a failure of industry, because some of you did testing and you found that there was a problem and then that was the end of it. We didn't hear anything more. Some of you didn't want to test at all, even though reports were coming out in the press about high formaldehyde levels in trailers causing people to be sick.

I do want everyone to understand when we heard about the fellow who said the smell is too bad, come and help me, I am wheezing and having all sorts of medical problems or symptoms, please, please, please help me, that was rare. Most people don't smell anything. But suddenly they have symptoms. They don't go to the manufacturer and say, I have symptoms, take your trailer back. They don't even know what is causing it.

So Government should know what is causing it, because it is well established that formaldehyde can cause these symptoms, and I believe industry has a responsibility, as well, to know that if they are selling this product that it may cause health problems to those who are buying it.

Testing by Mr. Shea's company showed high levels. Some of these levels were far above even the highest standard where there was a regulatory standard. They were in the hundreds and thousands of parts per billion. I think a manufacturer knowing this information had an obligation to make the product safer and to understand that perhaps there was a problem that needed to be corrected.

I think the rest of you also had an obligation to do some testing, not to act as if you didn't know, therefore there is nothing required of you.

Now, I am pleased that the four of you are in business. I am pleased that you have employees that have jobs with you. I am pleased that you have Members of Congress from your area that will vouch for you personally. I think you are entitled to make your profits, and even doubling of your salary in those 2 years when you had the FEMA contract, Mr. Shea, for you and I think it was your brother. You are entitled to that. I don't begrudge any of that. I want you to be in business.

But I think that when we have to abandon trailers, that it is not just the Government that should pay for it. I think there is some responsibility for the manufacturers, as well, because these levels should have been of concern.

I know that some Members have acted like you are victims because you are simply asked to come here and answer questions. I think that those that really suffered are the people who are getting sick from formaldehyde in these trailers. I think they are victims of FEMA's incompetence. They were victims of manufacturers who

didn't disclose what they knew about the formaldehyde dangers, as well.

We will see where all of this goes. I am willing to entertain ideas for legislation. That is the purpose of our oversight hearings. But also to find out what really happened.

I think that what happened is a disgrace on the part of the Government particularly, but is not an exoneration for the manufacturers who know or should have known or, in fact, did know that the trailers were not safe for those who were inhabiting them, and now the taxpayers have to be stuck with the bill.

So those are my concluding comments. I thank you all for being here voluntarily and cooperating with us. I think that is to your credit.

Now any comments you want to make to close off the hearing?

Mr. SOUDER. I thank the chairman for his generosity. I wasn't trying to have the last views, but I appreciate that, because this industry is really critical to my defense, as well as to Mr. Donnelly's. I was at the Goshen Air Show Saturday and people kept coming up asking, do you think we are going to get our jobs back? We really want to work. They love working in this industry. We need to keep this industry going. They have worked hard to meet the emergency demand.

We clearly today have kind of confused all sorts of things, but basically nobody wants to defend somebody getting sick. The challenge here is there is no evidence, even though it is a carcinogenic, at this point of, beyond basically itching, coughing, wheezing type things. This may be like peanuts: different people have allergic reactions. Clearly we need to be moving toward some sort of a warning standard as we do this research that different people react differently to this. That is at very minimal that should be there.

HUD had a standard. They met the standard, as far as they knew. Questions came up and the company volunteered to try to test, even though FEMA could have done those tests, even though FEMA was at the plant from morning until afternoon. The test was not prohibitively expensive. The company tried to engage FEMA and FEMA wasn't interested. The incredible justified negative publicity about the Government's handling of Katrina and FEMA has now resulted in an over-reaction to make it 16 parts, which is not achievable for emergency housing.

I want to reiterate again that the 390 that was tested scientifically, not by the type of formaldehyde meter, but scientifically to the gold standard. In Louisiana, in southern Louisiana, trying to convert the 6.6 milligrams per meter, which is their high point, appears to convert to 4,000 parts per billion for the highest of a site-built house in the region. This isn't a question just of manufactured housing, of travel trailers. It is a fundamental question about the materials, how they interact by region, and we need to have a scientific approach to this. Given the fact that we do not have that evidence of how much is even in the particular wood here versus in other homes in that region, given the ambient air standard on the Hancock study, which itself was not precisely the same type of thing, it is my belief unfair to suggest that the manufacturers bear responsibility when the science is, at the very least, very conflicted. It is not clear that every home in the region isn't hitting—certainly

if 390 is the mean, or the average, that means that a significant percentage of every house in at least, given what we know now, in Louisiana doesn't meet the standard. And we aren't asking for all our HUD houses to be backed. Private owners aren't asking to be backed. That has been my concern with this industry, not that we shouldn't be trying to learn the danger to individuals.

I look forward to working with the chairman in the future.

Thank you.

Chairman WAXMAN. Thank you very much, Mr. Souder. Thanks for all the witnesses' participation.

That concludes our hearing and we stand adjourned.

[Whereupon, at 1:55 p.m., the committee was adjourned.]

[The prepared statements of Hon. Diane E. Watson and Hon. Bill Sali follow:]

Opening Statement
Congresswoman Diane E. Watson
Committee on Oversight & Government Reform
Hearing: "Manufacturers of FEMA's Trailers"
July 9, 2008

Mr. Chairman, thank you for holding today's very important hearing, which will examine the role of four trailer manufacturing companies involved in producing and distributing trailers with elevated levels of formaldehyde to displaced survivors of Hurricane Katrina and Rita.

In 2005, one of the worst natural disasters in American history hit the Gulf Coast region. Two Category-Five hurricanes left over 1,800 dead, hundreds of thousands of people homeless, and damage totaling over $130 billion dollars.

In response to the drastic need of housing for hurricane survivors, FEMA provided travel trailers for displaced residents. Since 2005, 100,000 households have used trailers for temporary housing. Subsequently, people residing in the trailers began to report a number of health complications to officials.

In reaction to the complaints, in April 2006, the Sierra Club took it upon themselves to test the formaldehyde levels in the FEMA trailers. When the results from the tests showed elevated levels this committee responded by launching an investigation.

The investigation uncovered the poor response from FEMA regarding the unhealthy trailers, and what's more disturbing is FEMA's Office of General

Counsel intervened to prevent action from being taken to address the public health implications of formaldehyde.

Today, we are investigating the production and distribution methods of the top four trailer companies used in the FEMA housing relief strategy. What the committee hopes to uncover from these four companies is how these trailers were manufactured, why they did not place limitations on formaldehyde in their production, and how many of these trailer's materials end up being consumed by the general public.

Furthermore, I believe this committee should also focus on the impact of formaldehyde in other wood products, such as baby cribs. We should be interested

in protecting the safety of men, women, and children who could be potential victims of high levels of exposure to formaldehyde.

Mr. Chairman, I look forward to hearing the testimony of today's witnesses, and I thank you for the time. I yield back.

Statement of Bill Sali
Oversight and Government Reform Committee
Hearing on "Manufacturers of FEMA Trailers and Elevated Formaldehyde Levels"
July 9, 2008

Mr. Chairman and Ranking Member Davis,

I want to thank you for convening this important hearing.

In the wake of Hurricane Katrina, companies from the travel-trailer industry met the challenge by providing thousands of trailers to our displaced fellow citizens in a time of need.

Some of those companies that met that challenge are from Idaho. Such companies as Dutchmen Manufacturing, Jayco Inc. and Extreme RVs, Inc. help Idaho rank fourth in producing travel-trailers and seventh in the production of RVs.

We will hear today about findings from the latest formaldehyde testing done by the Centers for Disease Control and Prevention (CDC) on travel-trailers. The latest tests confirmed the CDC's earlier findings that there were "higher

than typical indoor exposure levels of formaldehyde in travel-trailers and mobile homes used as emergency housing in the Gulf Coast Region."

It is worth noting that despite this finding, the formaldehyde levels found by the CDC are still lower than the more stringent California emission levels. Also noteworthy is the fact that both FEMA and the industry are already taking steps to further address this issue. According to the Majority's own hearing memo, and I quote, "based upon CDC's recommendations, FEMA announced that it would begin 'taking additional steps to expedite the relocation of residents from manufactured housing to apartments or other alternative housing.' In March 2008, FEMA announced that it would 'test all unoccupied temporary housing units for formaldehyde before the units would be approved for occupancy.' In April 2008, FEMA announced that all future temporary housing units purchased by the agency had to test below 16 ppb for formaldehyde emissions. FEMA stated that the requirement would ensure that the formaldehyde levels in the units would be comparable to typical indoor air concentrations of formaldehyde." Close quote.

It seems to me that, based on test data from CDC, FEMA is taking steps to safeguard Americans from exposure to formaldehyde should they be so unfortunate to also suffer from a disaster.

Of interest is the CDC test conducted earlier this year regarding elevated levels of formaldehyde. The study showed that 98.8 percent of the tested units had ambient formaldehyde levels that were *lower* than the U.S. Department of Housing and Urban Development's target level of .4 parts per million (ppm) for mobile homes—the most analogous structures to RVs. Moreover, the data showed that the average formaldehyde level in the tested units was .077 parts per million, or 500 percent better than the HUD standard, and well below even the 0.1 ppm "action standard" urged by a variety of U.S. government and international agencies. This is compatible to the average formaldehyde level found in the Gulf Coast in travel-trailers, which was 0.077 ppm.

Not only are these travel-trailers currently surpassing the HUD standard, but the Recreation Vehicle Industry Association has voluntarily adopted a nationwide industry standard based on California's new tougher formaldehyde wood product emission levels. This new voluntarily adopted

standard will replace the HUD standard for the industry as it manufactures these travel-trailers in the future.

In light of the proactive measures taken by FEMA and the industry itself to protect Americans from elevated levels of formaldehyde, including the industry voluntarily adopting emission levels tougher than the HUD standard, I have questions about whether this Committee hearing will add anything but a layer of politics to this issue. Nonetheless, I hope this Committee hearing will maintain a careful and balanced review of this issue. Such a review by this Committee should focus on the need for balance to ensure that Americans are protected while at the same not being subjected to unnecessary and politically motivated layers of additional red tape and regulations on businesses. As I noted earlier, a number of those companies are in Idaho, and they have met the challenge of providing temporary housing to our fellow Americans in a time of need—and have done so in a way exceeding the most stringent formaldehyde standards in the country.

Thank you, Mr. Chairman.

○