

# Department of Homeland Security **Office of Inspector General**

**Unless Modified, FEMA's Temporary Housing Plans  
Will Increase Costs by an Estimated  
\$76 Million Annually**





## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

Washington, DC 20528 / www.oig.dhs.gov

JUN 25 2013

MEMORANDUM FOR: Joseph Nimmich  
Associate Administrator for Response and Recovery  
Federal Emergency Management Agency

FROM: John V. Kelly   
Assistant Inspector General  
Office of Emergency Management Oversight

SUBJECT: *Unless Modified, FEMA's Temporary Housing Plans Will  
Increase Costs by an Estimated \$76 Million Annually*

Attached is our final report, *Unless Modified, FEMA's Temporary Housing Plans Will Increase Costs by an Estimated \$76 Million Annually*. We incorporated the formal comments from the Federal Emergency Management Agency (FEMA) in the final report.

The report contains one recommendation aimed at improving FEMA's temporary housing plans. Your office concurred with the recommendation. Based on the information provided in your response to the draft report, we consider the recommendation resolved and closed.

Consistent with our responsibility under the *Inspector General Act*, we are providing copies of our report to appropriate congressional committees with oversight and appropriation responsibility over the Department of Homeland Security. We will post the report on our website for public dissemination.

Please call me with any questions, or your staff may contact Kaye McTighe, Director, Office of Emergency Management Oversight, at (202) 254-4100.

Attachment



**OFFICE OF INSPECTOR GENERAL**  
Department of Homeland Security

---

## Table of Contents

Executive Summary.....	1
Background .....	2
Results of Audit.....	5
An Alternative for the Smaller Park Model Housing Unit Will Save \$76 Million Annually .....	5
FEMA Resolved Most Hurricane Katrina-related Temporary Housing Unit Health Concerns .....	9
Concerns with 2011 Deployed Units.....	9
Conclusion.....	10
Recommendation.....	11
Management Comments and OIG Analysis .....	11

## Appendixes

Appendix A: Objectives, Scope, and Methodology.....	12
Appendix B: Management Comments to the Draft Report.....	14
Appendix C: State Summaries.....	16
Appendix D: Major Contributors to This Report.....	30
Appendix E: Report Distribution .....	31

## Abbreviations

DHS	Department of Homeland Security
FEMA	Federal Emergency Management Agency
GAO	Government Accountability Office
HUD	U.S. Department of Housing and Urban Development
HVAC	heating, ventilating, and air conditioning
IATAC	Individual Assistance Technical Assistance Contractor
OIG	Office of Inspector General
UFAS	Uniform Federal Accessibility Standards



## **Executive Summary**

The Federal Emergency Management Agency (FEMA) announced a change in its temporary housing program that we estimate will increase costs and reduce efficiency and effectiveness. In 2012, FEMA announced that it would no longer use park models as a housing option, and instead would use only manufactured housing certified by the U.S. Department of Housing and Urban Development. Unless FEMA takes actions to ensure that it maintains the ability to use temporary housing units similar in size to the park model, this decision will increase program costs by tens of millions of dollars annually, and may hinder FEMA's ability to provide shelter to disaster survivors quickly.

In reacting to the decision, FEMA field staff expressed concerns to us about their ability to house disaster survivors quickly and cost effectively. Further, FEMA officials said that many homeowners prefer units that can fit on their home sites, because it allows them to remain on their own property near their places of employment and schools while they rebuild their homes. Often, the larger manufactured housing units can be situated only on commercial sites, if available, or on FEMA-developed group sites. For 2011 disasters, 80 percent of units on private sites were park models. Based on our cost analysis, if FEMA placed manufactured housing units on group sites instead of park models on private sites, the increased cost of the temporary housing mission would be \$76 million for a 12-month deployment. We question the decision to eliminate the park models.

Since Hurricane Katrina, FEMA has improved the quality of its temporary housing units. FEMA resolved the unhealthy formaldehyde levels and the fire hazards related to the temporary housing units. A major contributing factor to improved housing conditions was FEMA's decision to discontinue the use of travel trailers, designed for recreational use, which were the source of many of the previous health and safety problems. Instead, FEMA provided survivors with manufactured housing units certified by the U.S. Department of Housing and Urban Development, along with smaller park models that are not certified. However, both of these deployed units still had various product quality, installation, and transportation issues. We have made one recommendation to improve the efficiency and effectiveness of the temporary housing unit program.

Appendix C contains summaries of the challenges and successes of the 2011 temporary housing deployments in Missouri, Pennsylvania, New York, North Dakota, Alabama, Mississippi, and North Carolina.



## Background

Section 408 of the *Robert T. Stafford Disaster Relief and Emergency Assistance Act* (42 U.S.C. 5174) authorizes FEMA to provide housing assistance to disaster survivors, including rental allowance and direct assistance in the form of temporary housing units. The temporary housing unit program, which is the subject of this report, involves the acquisition, transport, placement, maintenance, and deactivation of temporary housing units for use by disaster survivors.

Hurricanes Katrina and Rita displaced approximately 700,000 people, exhausting the supply of available housing and resulting in a massive FEMA temporary housing effort. In response to these two disasters, FEMA placed more than 200,000 manufactured housing units, travel trailers, and park models in private sites, existing mobile home parks, and group sites throughout the Gulf Coast area. Because this exceeded the inventory of available temporary units, FEMA had manufacturers quickly produce travel trailers, park models, and manufactured housing units. The group site effort experienced major problems. Many communities did not want FEMA to place group sites in their community. Placing the sites increases costs, as noted in a 2007 Government Accountability Office (GAO) report. GAO estimated that the cost of placing units at group sites (including site improvements) ranged from \$69,000 to exceeding \$220,000 per unit. In contrast, GAO reported that the cost of placing a unit at a private site was about \$30,000.

More important, many FEMA-supplied units presented health and safety issues. The most serious health issue was formaldehyde levels. In a 2008 report, the Centers for Disease Control and Prevention reported that 38 percent of the units tested had formaldehyde levels that could cause health effects in sensitive individuals. The report also stated that travel trailers had higher formaldehyde levels than manufactured housing units or park models.




FEMA received a great deal of criticism in the press, from Congress, and from the accountability community concerning these health and safety issues, particularly formaldehyde levels. FEMA officials researched the causes of these problems and instituted corrective actions. Also, FEMA officials worked with manufacturers to develop park model units with so few formaldehyde-emitting components that the formaldehyde levels would be less than even the manufactured housing units certified by the U.S. Department of Housing and Urban Development (HUD). In addition, FEMA tested a variety of housing options at a test site in Maryland. However, FEMA ultimately decided to terminate its programs to develop and provide improved air quality park models, and to rely solely on HUD-certified units.



**OFFICE OF INSPECTOR GENERAL**  
Department of Homeland Security

Historically, FEMA used three types of temporary units for disaster survivors: travel trailers, park models, and manufactured housing units. Figure 1 briefly describes these units.

**Figure 1. Historical FEMA Temporary Housing Units**

<p><b>Travel Trailer</b></p> 	<p>Travel trailers are designed to provide temporary living quarters for recreational purposes. They are not regulated by HUD. FEMA told us that it decided to terminate the use of travel trailers in response to formaldehyde concerns following Hurricanes Katrina and Rita. FEMA now does not consider such units appropriate for long-term use as a dwelling.</p>
<p><b>Park Model</b></p> 	<p>Park models are 12 feet wide and 33 feet long. They are transportable, primarily designed for long-term or permanent placement, and are not regulated by HUD. Park models are designed to provide temporary living quarters for recreation, camping, or seasonal use, and some zoning laws provide more flexibility in their placement.</p>
<p><b>Manufactured Housing Unit</b></p> 	<p>Manufactured housing units are 12 to 14 feet wide and 40 to 64 feet long. They are designed in one-, two-, or three-bedroom models. They are regulated by HUD and are intended as permanent housing, with some zoning laws restricting their placement.</p>

After Hurricane Katrina, FEMA decided to terminate the use of travel trailers because of health concerns and adverse publicity. Therefore, in 2011 FEMA used park models and manufactured housing units for its disaster response.

FEMA places housing units at three site types:

**Private Sites** – Units are placed directly on private property, typically in a front yard or driveway. Disaster survivors prefer these sites because they are able to stay on their own property while repairs are made to their homes and they can maintain a sense of community. Private sites are the least expensive option.

**Commercial Sites** – Units are placed on existing property, typically in commercial trailer parks or campgrounds, that have all the necessary utility hookups and are



## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---

ready for occupancy. The cost effectiveness of these sites depends greatly on whether FEMA can place units on vacant pads or has to fund a site expansion.

**Group Sites** – Units are placed on sites that are built, including the installation of utilities, to accommodate housing units for displaced survivors. These sites require time to develop and are FEMA’s most expensive option. FEMA told us that group sites are the least desirable option.

Implementing guidance specifies that unit placement, whenever practicable, should be located on sites provided by the State or local government, the owner of the site, or the displaced occupant. As an alternative, group sites provided by FEMA can be used if they are more economical or accessible.

In 2011, FEMA reviewed its direct housing program to identify ways to make greater use of existing resources and increase efficiency while ensuring the comfort and security of disaster survivors. FEMA convened the direct housing program review in response to comments from stakeholders, including members of Congress; State, local, and tribal government officials; nonprofit organizations; and private sector partners. During this effort, FEMA took into account information received over the years from housing partners, including HUD, members of Congress, States, local governments, housing associations, nonprofit organizations, and disaster survivors. As a result of its review, FEMA decided that it would use only larger HUD-certified manufacturing housing units. In support of this decision, FEMA stated that HUD standards for manufactured housing, with respect to formaldehyde, cover the use of various wood products in manufactured housing. Based on this issue, FEMA told us it decided to purchase HUD-certified manufactured homes to replace travel trailers and park models in its inventory, both of which are not regulated by HUD. FEMA also told us that although this decision will prevent the use of park models, it considered that the HUD-certified manufactured homes will provide disaster survivors with temporary accommodations more suitable for longer-term occupancy.



## Results of Audit

FEMA's decision to rely solely on HUD-certified units for its temporary housing unit program will likely increase the cost of the program. Our analysis of FEMA cost and usage data shows that this decision will increase program costs by an estimated \$76 million and place a greater burden on future displaced survivors. In 2011, 80 percent of the temporary housing units that FEMA placed at private sites were park models. If FEMA used only manufactured housing units, some may have been placed in commercial or group sites at a substantially higher cost.

In 2011, FEMA used two types of units to house temporarily nearly 4,000 families impacted by disasters. Those units consisted of FEMA-approved park models and HUD-certified manufactured housing units. Neither the park models nor the HUD units had the formaldehyde-related air quality and fire hazard issues that plagued the units provided to Hurricanes Katrina and Rita survivors. FEMA and State officials and disaster survivors were generally pleased with temporary housing units used in 2011; however, they cited problems with some units' design and quality. Appendix C contains summaries by State of the unit deployments.

In supporting its decision to use only HUD-certified homes, FEMA asserted that it will have greater access to manufactured housing sold in the United States, and it will not have to incur the cost of storing a large number of units in its inventory. The conclusions reached in this report assumed that FEMA would continue to maximize the use of available manufactured housing and minimize the number of units in its inventory. Therefore, we did not estimate cost of storing temporary housing units because there is not a reliable way of estimating that amount.

### **An Alternative for the Smaller Park Model Housing Unit Will Save \$76 Million Annually**

In 2012, FEMA announced plans to use only the HUD-certified units in the future, eliminating the more compact park model units. Because of their size and some State/local zoning limitations, the HUD-certified units cannot be used on some private sites unless FEMA takes action to reduce the size of the units. This decision will force FEMA to place units at the more expensive commercial and group sites. Based on the number of FEMA-deployed park models on private sites in 2011, we estimate that the decision will cost FEMA an additional \$76





## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---

million if manufactured housing units are placed in group sites.<sup>1</sup> Our analysis of the nearly 4,000 units deployed in 2011 is consistent with the average annual number of about 4,400 temporary housing units occupied from 2004 through 2010.<sup>2</sup> This number excluded housing units occupied in Louisiana and Mississippi for Hurricane Katrina, since the housing mission for this disaster was extraordinarily high. In addition to the added costs, FEMA field staff and State officials expressed concern regarding this new policy since commercial expansions and group sites require more time to construct, and survivors may be displaced longer and relocated to areas with a greater distance from their community, places of work, and children's schools.

According to the Stafford Act, temporary housing units, whenever practicable, should be located on sites provided by the State or local government, the owner of the site, or the displaced occupant.<sup>3</sup> As an alternative, group sites provided by FEMA can be used if they are more economical or accessible. By restricting the use of smaller units such as the park models, FEMA has in effect eliminated many smaller-capacity economical sites, a decision that appears inconsistent with the Stafford Act's guidance on site location. Furthermore, the Stafford Act, § 408(b)(2), 42 U.S.C. § 5174(b)(2), sets forth procedures that FEMA is to follow when providing housing assistance, stipulates factors such as (1) cost effectiveness; (2) convenience to the individuals and households; and (3) the suitability and availability of the types of assistance. FEMA's decision to limit temporary housing choices to HUD-certified units that sometimes cannot fit on residential sites, are more expensive, and often involve time-consuming relocations, seems contrary to the Act's intent.

We have categorized FEMA's temporary housing unit program costs into three broad types: (1) unit acquisition costs; (2) one-time costs to make the site ready, place, and deactivate the unit; and (3) recurring costs for unit cleaning and maintenance, pad leases, and utilities.<sup>4</sup> In the 2011 deployment, the park

---

<sup>1</sup> We based the \$76 million estimate on FEMA needing to replace the 1,373 park models it placed on private sites with HUD-certified units at group sites. We believe that this estimate is a valid assumption because 93 percent of the HUD-certified units FEMA used were the large three-bedroom models. To avoid overstating the estimate, we limited recurring costs to a 12-month period—not FEMA's allowable 18-month period. See figure 2.

<sup>2</sup> We excluded the 127,726 housing units that FEMA used in 2005 in the states of Louisiana and Mississippi for Hurricane Katrina.

<sup>3</sup> 42 U.S.C. 5174(d)(1), Terms and Conditions Relating to Housing Assistance Sites. We based our analysis on FEMA's compliance with the economy and accessibility concerns for disaster survivors in this section of the Stafford Act.

<sup>4</sup> We did not estimate cost of storing temporary housing units because there is no reliable way of estimating that amount.

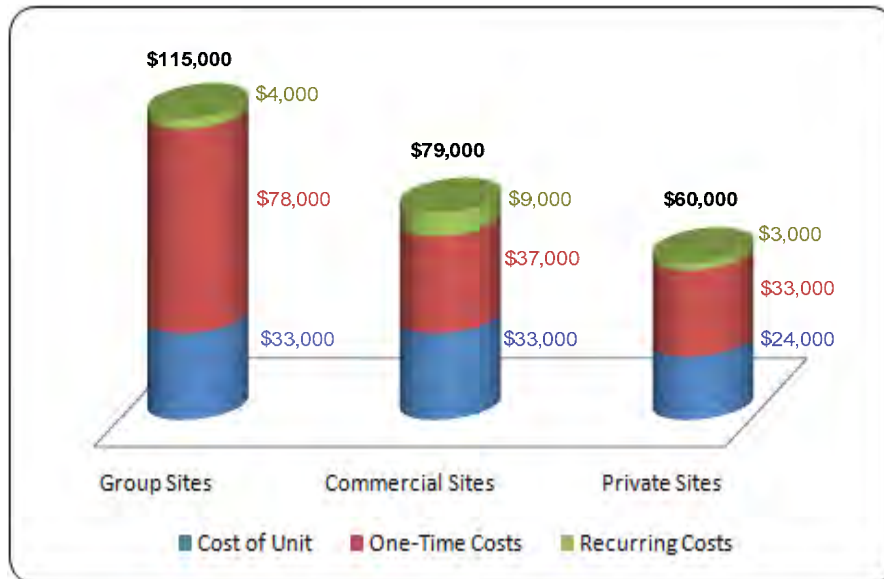


**OFFICE OF INSPECTOR GENERAL**  
Department of Homeland Security

models (costing about \$24,000 each) comprised 80 percent of the units at private sites. The HUD-certified units (costing an average of about \$33,000 each) were placed mainly at group and commercial sites and comprised only 20 percent of the units at private sites.<sup>5</sup>

Figure 2 shows that the group site one-time setup costs for 2011 exceeded the one-time private site setup costs by \$45,000. The reason for this significant cost difference is that FEMA pays for site preparation and infrastructure, including utilities and roads, at group sites. These costs are seldom necessary at private sites. As for recurring costs, FEMA pays to maintain the units at all three types of sites, but other costs vary by site. For instance, monthly pad rentals are a part of the cost of commercial sites, whereas private or group sites do not have this cost. Utilities are a cost of group sites, while that expense is usually included in the pad rental at commercial sites.

**Figure 2. Average 12-Month Cost of a FEMA Temporary Housing Unit by Type of Site for 2011 Disasters<sup>6</sup>**



Source: OIG analysis of FEMA data

<sup>5</sup> Most manufactured housing units placed by FEMA were two- and three-bedroom models. FEMA did place five one-bedroom units on commercial sites in 2011.

<sup>6</sup> To avoid overstating the estimated increased costs, our analysis did not rely on a weighted average of the cost of temporary housing units used during 2011. If we had, the weighted average cost of the HUD-certified units would have been \$43,756 and the weighted average of the park models would have been \$22,148. This is because 93 percent of the HUD units that FEMA used were the larger three-bedroom units that cost about \$45,000 and 87 percent of the FEMA park models were a less expensive model that cost only \$21,500.



## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---

Few commercial sites had adequate vacancies to accommodate the number of pads needed for the temporary housing units. As a result, FEMA funded upgrades and expansions to permit additional units to locate at these sites. These upgrades can be very expensive. For example, in Prattsville, NY, FEMA hired the U.S. Army Corps of Engineers to expand a commercial site. During the 2011 temporary housing unit mission, only 10 units were placed in the park and the expansion cost FEMA more than \$270,000 per unit.

In response to the 2011 North Dakota flooding, FEMA placed 1,056 park models at survivors' private sites, thus saving taxpayers \$58 million that might have been required to construct group sites that accommodate HUD-certified manufactured housing units.<sup>7</sup> In North Dakota, FEMA used park models on 94 percent of the private sites. If FEMA had to use HUD-certified manufactured housing units and place them at newly constructed group sites, the estimated additional cost to construct those sites is about \$46 million.

After Hurricane Irene struck North Carolina, FEMA installed 209 temporary housing units for disaster survivors. Initially, some of these units were not a viable option because most of the areas affected were low elevation and designated as Special Flood Hazard Areas.<sup>8</sup> Manufactured housing units are restricted from being placed in Special Flood Hazard Areas by local or county zoning ordinances. However, impacted counties, the State, and FEMA developed a compromise to allow the use of two-bedroom park models with the requirement that they were vacated and retrieved prior to the 2012 hurricane season. As a result, 174 park models were able to be placed on private sites. Without the option of the park model, the HUD-certified manufactured housing units would have been placed in commercial or group sites and survivors would not have been able to stay on their own property.

FEMA and State officials told us that disaster survivors generally prefer being near their own property because it is less disruptive to their lives. Specifically, having the temporary housing unit near their damaged home is closer to both their children's schools and often the homeowners' place of employment. It also enables disaster survivors to monitor the progress being made to their home. FEMA informed us that it started to negotiate with manufacturers of HUD-

---

<sup>7</sup> The \$58 million estimate consist of \$10 million in additional costs housing unit costs, 2 million for recurring costs and \$46 million in group site construction costs.

<sup>8</sup> Land areas that are at high risk for flooding are called Special Flood Hazard Areas or floodplains. These areas are indicated on flood insurance rate maps. A home located in a floodplain has a 26 percent chance of suffering flood damage during the term of a 30-year mortgage.



## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---

certified manufactured housing units to construct smaller units that would replace the park models.

### **FEMA Resolved Most Hurricane Katrina-related Temporary Housing Unit Health Concerns**

In response to the housing unit problems that followed Hurricanes Katrina and Rita, FEMA studied the situation and instituted several corrective actions. Most notably, FEMA eliminated the travel trailer units from the program while continuing to use park models and full-size manufactured housing units. FEMA also instituted indoor air quality standards that park model and HUD-certified manufactured housing manufacturers had to meet. Because these actions did not add any mechanical device or alternative construction method, FEMA did not quantify the associated costs of these actions. According to FEMA, the roughly 4,000 temporary housing units deployed in 2011 did not have problems with unhealthy indoor air quality or fire safety.

### **Concerns with 2011 Deployed Units**

Although FEMA field staff and State officials were pleased with both the park models and the HUD-certified units, they reported some problems with units deployed in 2011 that detracted from disaster survivors' well-being. Those problems by category were—

#### **Product Quality**

- Inefficient heating units;
- Defective microwave ovens;
- Ground fault circuit interrupters not installed, as required;
- Inadequate sized wire for the electrical load of the heating, ventilation, and air conditioning (HVAC) unit;
- Inoperative smoke detectors and weather radios;
- Clogged drains;
- Defective faucets;
- Moisture and mold problems;
- Faulty drains, with standing water in showers;
- Water leaks in toilets, sinks, and showers; and
- Inadequate air ventilation systems.



## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---

### Installation Problems

- FEMA contractors did not provide timely installation;
- Electrical panel boxes were incorrectly installed;
- Water lines froze when heat tape was incorrectly installed;
- High winds in some areas destroyed trailer foundation skirting; and
- Winterization (arctic doors, insulation, etc.) was inadequate in northern climates.

### Transportation-related Damages

- Some units' tow hitches broke during transport; and
- Water damage occurred during transport.

Appendix C contains summaries of the challenges and successes of the 2011 temporary housing deployments in Missouri, Pennsylvania, New York, North Dakota, Alabama, Mississippi, and North Carolina.

### **Conclusion**

Our audit of the 2011 disasters showed that FEMA made significant improvements in reducing formaldehyde exposure and fire hazards in its temporary housing unit program. However, our cost analysis shows that placing temporary housing units at group sites and commercial sites cost significantly more than placing them at private sites. FEMA's recent policy change to discontinue using the park model homes as a temporary housing alternative will result in a significant increase in the cost of the temporary housing program. The limited amount of space in commercial mobile home parks and the costs of developing vacant land for group sites will be even more pronounced for a large-scale housing mission. In addition, State, local, and some FEMA officials predict that the decision to discontinue the use of park model homes as a temporary housing alternative will cause delays in providing occupancy-ready temporary housing. They also predict the decision will make it difficult for future disaster survivors to reside near their own property while rebuilding their homes and make it more difficult to establish normalcy in the aftermath of a disaster. In our view, this policy change will jeopardize FEMA's ability to provide cost-effective and rapid disaster housing assistance.

FEMA informed us that it started to negotiate with manufacturers of HUD-certified manufactured housing units to construct smaller units that would replace the park models. If those smaller units can be placed on the typical



## OFFICE OF INSPECTOR GENERAL

### Department of Homeland Security

---

private sites, we encourage FEMA to pursue that alternative and would consider that initiative to satisfy the intent of our recommendation.

#### **Recommendation**

We recommend that the Associate Administrator for Response and Recovery, Federal Emergency Management Agency:

**Recommendation #1:** Provide a comparable housing alternative to the park model unit that (1) allows disaster survivors, when possible, to stay close to their home and (2) is cost effective, saving an estimated \$76 million annually.

#### **Management Comments and OIG Analysis**

We received and reviewed written comments on the draft report from FEMA's Associate Administrator for Policy, Program Analysis and International Affairs. FEMA concurs with our recommendation and is implementing an action plan. In 2012, FEMA developed and executed a contract for a one-bedroom manufactured home that is comparable in size and cost to a park model. FEMA believes the current mix of sizes now available will allow for survivors' needs to be met more effectively and efficiently. FEMA provided the Department of Homeland Security Office of Inspector General (OIG) with documentation of the solicitation for the one-bedroom manufactured homes. Based on the information provided, we consider this recommendation closed. Appendix B includes a copy of the management comments in their entirety.



## **Appendix A**

### **Objectives, Scope, and Methodology**

The Department of Homeland Security (DHS) Office of Inspector General (OIG) was established by the *Homeland Security Act of 2002* (Public Law 107-296) by amendment to the *Inspector General Act of 1978*. This is one of a series of audit, inspection, and special reports prepared as part of our oversight responsibilities to promote economy, efficiency, and effectiveness within the Department.

The objective of this audit was to review the economy and effectiveness of FEMA's temporary housing unit program, which included the safety and suitability of the housing units deployed in 2011. We audited the time required to place housing units at disaster sites, the quality and costs of the housing placement sites, the quality and costs of the different types of units, and the suitability and safety of the units as experienced by the disaster survivors.

The scope of our review included FEMA temporary housing units deployed in calendar year 2011. We audited the temporary housing unit program operation in the seven States that had the most units deployed. The units in those seven States constituted more than 97 percent of all FEMA units deployed.

We interviewed FEMA officials at headquarters and at field offices in the seven States visited. In cases where FEMA Joint Field Offices completed housing operations, we interviewed the FEMA regional officials who assumed responsibility for those operations. We also interviewed State and local officials knowledgeable about or responsible for housing unit operations in those seven States. We reviewed documents related to the temporary housing unit program and examined a sample of units in the field at private sites, commercial mobile home parks, and group sites. We conducted fieldwork in the District of Columbia, Missouri, Pennsylvania, New York, North Dakota, Mississippi, Alabama, Colorado, and Georgia.

To be conservative in our calculation of the additional cost of the change in FEMA temporary housing policy, we used the straight average of a cost of a park model (\$23,948) and the straight average of the cost of one-, two-, and three-bedroom mobile homes (\$33,319). The amount would be more if we used the weighted average of the units based on the total deployment of housing units in 2011. For the park models, 87 percent deployed were standard and 13 percent were Uniform Federal Accessibility Standards (UFAS), which produced a weighted average of \$22,148. For the mobile homes, only 0.4 percent were one-bedroom models, 6.6 percent were two-bedroom models, 82 percent were three-bedroom models, and 11 percent were three-bedroom



## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---

UFAS models, which produced a weighted average of \$43,756. This would have increased the estimate by approximately \$17 million.

We conducted this performance audit between February and October 2012 pursuant to the *Inspector General Act of 1978*, as amended, and according to generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based upon our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based upon our audit objectives.





**OFFICE OF INSPECTOR GENERAL**  
Department of Homeland Security

**Appendix B**  
**Management Comments to the Draft Report**


U.S. Department of Homeland Security  
Washington, DC 20472



**FEMA**

JUN 04 2013

MEMORANDUM FOR: D. Michael Beard  
Assistant Inspector General  
Office of Emergency Management Oversight

FROM: David J. Kaufman   
Associate Administrator for  
Policy, Program Analysis and International Affairs  
Federal Emergency Management Agency (FEMA)

SUBJECT: FEMA Response to OIG Draft Report: OIG Project Number 12-114-EMO-FEMA. "Unless Modified, FEMA's Temporary Housing Plans Will Increase Costs by an Estimated \$76 Million Annually"

Thank you for the opportunity to review and comment on OIG Draft Report: OIG Project Number 12-114-EMO-FEMA, "Unless Modified, FEMA's Temporary Housing Plans Will Increase Costs by an Estimated \$76 Million Annually".

The draft report contains one (1) recommendation in which our office concurs. This memorandum serves as our written comments on the draft report and specific responses to each recommendation.

**OIG Recommendation:** We recommend that the Acting Associate Administrator for Response and Recovery, Federal Emergency Management Agency provide a comparable housing alternative to the park model unit that (1) allows disaster survivors, when possible, to stay close to their home and (2) is cost effective, saving an estimated \$76 million annually.

**Management Comments and OIG Analysis:** During our exit conference with FEMA on February 20, 2013, they said they were addressing this issue. Once they provide us with information concerning their action plan, we would consider this recommendation closed.

**FEMA Response to Recommendation: Concur.** In 2012 FEMA developed and executed a contract for a one-bedroom manufactured home that is comparable in size and cost to a park model with five vendors; Recreation By Design, LLC; GSH of Alabama, LLC; Scotbilt Homes, Inc.; Champion Home Builders, Inc.; and PKMM, Inc. This model was not available in 2011, the year for which the OIG report is based. We believe that had the one-bedroom model been available in 2011, they would have been suitable substitutes for the majority of park models. FEMA's decision to use only manufactured homes that meet HUD standards is based on an

[www.fema.gov](http://www.fema.gov)



## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---

overriding concern for health and safety of disaster survivors. We believe the current mix of sizes now available will allow us to more effectively and efficiently meet survivors' needs.

FEMA believes that our response satisfies the intent of this recommendation and requests that recommendations be closed.

Thank you again for the opportunity to comment on OIG Draft Report: OIG Project Number 12-114-EMO-FEMA, "Unless Modified, FEMA's Temporary Housing Plans Will Increase Costs by an Estimated \$76 Million Annually". Please direct any questions regarding this response to Gary McKeon, FEMA's Chief Audit Liaison, at 202-646-1308.

**Attachment:**

Solicitation contains all of FEMA's requirements regarding the Temporary Housing Units (THU's).



## Appendix C State Summaries

### Missouri

---

On May 22, 2011, an Enhanced Fujita scale-5 tornado struck the city of Joplin, MO, leaving a 6-mile long and 1.5-mile wide path of destruction. More than 160 people were killed, many more were injured, and about 400 structures (including major structures such as a high school and hospital) were destroyed. Most of the destroyed structures were residences. Presidential Declaration FEMA-1980-DR was signed.



The destruction left by the Joplin Tornado. Source: OIG

Because many homeowners had adequate insurance, they were able to stay in hotels or motels while their homes were rebuilt. However, disaster responders, along with the insured homeowners, rapidly filled area hotels and motels, leaving little available housing for displaced renters. A housing task force was established with local, State, and Federal government collaboration. During the task force field assessment, it became apparent that temporary housing units and community group sites would be required.

Local government officials identified land adjacent to the Joplin Airport for the development of group sites. Roads, a police station, a fire substation, and tornado shelters were built at the sites, and electrical, water, and sewer connections were established. The first 100 units were in place by the end of



## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---

July and an additional 411 units were set up in August. Two of the three group sites were developed by the U.S. Army Corps of Engineers and the third, along with the commercial site expansion, was constructed by a FEMA Individual Assistance Technical Assistance Contractor (IATAC). A total of 586 units were occupied out of the 597 units placed. Approximately 90 percent of the survivors had been renters prior to the disaster.



A Joplin FEMA Group Site Scene. Source: OIG

Local government officials said that they were generally pleased with the temporary housing sites' development process, the speed with which temporary housing was provided, and the adequacy of the units. They said that the quick establishment of the Missouri joint housing taskforce was an effective means to address any problems as they developed. FEMA officials in Missouri reported that there were no major problems with the temporary housing units. The most common housing issues were that some park models had been delivered with sawdust-clogged plumbing drains and the high winds common to the area tore the skirting around the foundation. Most problems were readily corrected.

FEMA officials said that temporary housing in future disasters could be costlier if only manufactured housing units will be used since these do not fit on most private lots and FEMA housing officials will have to find available commercial sites or develop group sites.



## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---

### Pennsylvania

---

From August 26 through 30, 2011, Hurricane Irene hovered over eastern Pennsylvania, causing catastrophic flooding and extensive damage. Four days later, Tropical Storm Lee struck the same general area and caused additional damage. Fifteen people died as a consequence of the storms and more than 11,000 applicants required rental and direct housing assistance from FEMA. Presidential Declarations FEMA-4025-DR and FEMA-4030-DR were signed on September 3, 2011, and September 12, 2011, respectively. Because Pennsylvania has had an influx of workers developing the natural gas fields, little unused housing was available in some affected areas. FEMA needed to place 330 temporary housing units in 10 different counties. Both manufactured housing units and park models were used. The 330 units were placed at two FEMA-developed group sites, two FEMA-funded commercial park expansions, vacant pads in mobile home parks, and private sites (such as on the property of damaged homes). FEMA officials said that placing units in commercial parks on existing pads was less costly than the new development of group sites, which is the most costly option. FEMA made use of both the U.S. Army Corps of Engineers and a FEMA IATAC in developing sites and placing units.



Flood-damaged home in Pennsylvania. Source: OIG

The biggest problem faced by FEMA officials in Pennsylvania was the performance of the FEMA IATAC in getting units installed in a timely manner. FEMA used both the U.S. Army Corps of Engineers and an IATAC. FEMA officials said that the Corps performed satisfactorily, but the IATAC did not. The IATAC and its subcontractors were not adequately staffed, and did not know or follow



## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---

local building codes, resulting in code violations and delays. Sometimes the IATAC subcontractors performed sloppy and inadequate work and had to be recalled to correct errors. The IATAC took an average of 17 days to deliver and install each housing unit once the unit had arrived at the Pennsylvania staging area. FEMA officials said that installation was to be completed in 72 hours rather than 17 days. As a consequence, the last disaster survivors were not placed in housing units until December 24, 2011, nearly 4 months after the disaster. FEMA officials said that placement could have been completed a month earlier if the IATAC performance had been satisfactory.

Apart from the installation problems, FEMA and a local government official said that they were generally pleased with the quality and suitability of the temporary housing units. Problems with the housing units in Pennsylvania included the following:

- Water leaks due to plumbing defects;
- Cheap faucets with plastic components that would break off and leak;
- Electrical breaker boxes installed upside-down in 87 units;
- Damage during the hauling to Pennsylvania; and
- Heating system problems.

Many units were difficult and expensive to heat adequately. The units have electric heat, and FEMA officials said that air flow velocity contributed to the problem. Survivors at private sites, who have to pay their own utility bills, complained of high electric bills. Commercial site owners, who pay utility costs out of pad rent, reported unusually high electrical bills and have demanded, and received, an increase in rent payments from FEMA.

Occupants said that FEMA units can be uncomfortable because of excessive air from the ceiling vents, which in many cases blow right onto beds or seating areas. When it is cold, some residents said that they addressed the lack of comfort and high costs of heating the FEMA units by adding supplemental heaters, which can introduce possible fire hazard conditions.

Unfortunately, some housing units already placed on private sites needed to be moved to commercial or group sites because of potential flooding concerns. Pennsylvania considers the park model units to be manufactured housing and, therefore, neither the manufactured housing units nor park model units could stay in any designated floodplains.



## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---

### New York

---

Hurricane Irene struck large areas of the State of New York on August 26, 2011, resulting in widespread flooding and a Federal disaster declaration covering 31 counties. The remnants of Tropical Storm Lee hit 12 southern New York counties (7 of which were also part of the area damaged by Hurricane Irene) early in September. Presidential Declarations FEMA-4020-DR and FEMA-4031-DR were signed on August 31, 2011, and September 13, 2011, respectively. Some areas had a shortage of available housing and required the use of FEMA temporary housing units. FEMA officials ordered 240 housing units, manufactured housing units, and park models, of which 128 were occupied. The majority of the units were installed in commercial mobile home parks since the homeowners' private sites were often in designated floodplain areas. FEMA used a local contractor to install units and had some contractor performance problems. A State official said that disaster survivors became frustrated with the amount of time it took to get manufactured housing units ready for occupancy, and some obtained alternative housing.



A temporary housing unit on a private property site. Source: OIG

Other problems reported by FEMA officials were as follows:

- Units were difficult to heat, and expensive;
- Three units flooded due to plumbing breaks and had to be removed from service;
- More than 25 units had problems with faulty and leaking kitchen faucets; and
- Some units arrived with the electrical breaker box installed upside-down.



## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

The most common problem was with the units' electric heat systems. Since manufactured housing units in New York usually are heated with propane, many mobile home parks were not wired to support electrically heated units. FEMA spent more than \$700,000 to rewire the mobile home parks. In addition, the heating systems were not satisfactory. In cold weather, the heating systems in some FEMA units could not keep the temperature above 65 degrees. Although FEMA spent \$230 per unit to have a contractor adjust the heating system baffles, the airflow from the overhead heating vents still caused the units to feel chilly even when the temperature was adequate. Some mobile home parks provided residents in FEMA units with space heaters. In addition, the units' heating systems were expensive to operate. FEMA officials estimated that the units' heating systems cost two to three times the amount of propane systems in similarly sized units.



The Prattsville Mobile Home Park expansion funded by FEMA. Source: OIG

This FEMA-funded mobile home park expansion in Prattsville, NY, is an example of the high costs involved in the use of temporary housing. Although small, with a population of 1,036, Prattsville had extensive flooding. The damaged homes were generally in the floodplain, precluding the use of manufactured housing units on private lots. FEMA officials in New York decided to fund the expansion of a mobile home park in Prattsville. FEMA officials wrote that the project was needed to “minimize the amount of time displaced individuals and families spend at alternative locations, and thus limit further economic and personal hardship for affected residents, disrupt school attendance and the school system, and further strain the Town’s social and economic infrastructure [sic].”





## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---

Since much of the 2.85 acre expansion was in the floodplain, the project required an extensive and expensive fill operation in addition to the costs of road, electrical, sewer, and water connections.

FEMA arranged for the U.S. Army Corps of Engineers to alter the site to accommodate 20 additional mobile home pads at a cost of more than \$2.7 million, or more than \$135,000 per pad. However, only 10 of these pads were occupied by FEMA units because by the time the project was completed, some of the families had found other options. Consequently, the expansion alone cost FEMA more than \$270,000 for each of the 10 occupied units. By the time manufactured housing units were purchased and installed, access ramps or stairs constructed, and rent paid on the pads, each of the 10 occupied units would cost FEMA around \$340,000.

### North Dakota

---

Heavy rain caused flooding in the City of Minot and other parts of Ward County, ND, between February 14 and July 20, 2011. Approximately 800 structures were destroyed and an additional 2,400 structures were significantly damaged. Presidential Declaration FEMA-1981-DR was signed on May 10, 2011. Nine counties and one Tribal Nation were approved for Individual Assistance.



Minot, ND, July 6, 2011 – Parts of Minot, ND, still under water after the Souris River overflowed its banks. Source: FEMA

Three of the affected counties in North Dakota already had housing shortages because of the economic boom created by the oil industry. The temporary housing mission provided shelter to a total of 1,981 households in 2,041 units.



## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---

Some families were provided two units placed on a private site to accommodate their family size. All eligible applicants were housed by December 24, 2011.



FEMA's Virgil Workman Group Site in Minot, ND. Source: OIG

FEMA used all available direct housing options in North Dakota. Units were placed at 1,118 private sites to allow residents to be close to their damaged homes while making needed repairs. Pads were leased at five commercial mobile home parks to place 261 units. FEMA initiated a \$40 million mission assignment with the U.S. Army Corps of Engineers for the construction of three group housing sites to hold a total of 850 units. The Corps was chosen because of the proposed aggressive timeline and the limited construction season due to the approaching winter. The timeline proved to be unrealistic because of a number of delays. It took until December 24, 2011, to have all disaster survivors in their units. The paving of roads became a secondary concern as the focus was to house the applicants. The Corps had to go back after the thaw to resurface the roads.

Housing unit problems due to design and manufacturing quality control included the following:

- Water leaks from sinks and toilets;
- The air returns over beds were a common complaint and some survivors began to use space heaters in order to turn the systems off and stay warm;
- Some two-axle units from one manufacturer commonly had hitches break during transport, forcing drivers to repair units on the side of the road prior to arrival at the staging area;



## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---

- 449 units from one manufacturer had electrical boxes installed upside-down; and
- Some units had underrated electrical wire for the size and electrical load of the HVAC unit.

North Dakota's weather presented challenges for FEMA's direct housing mission and caused FEMA to spend \$13 million to winterize units. Above-ground utilities on private sites were heat taped, insulated, and further insulated with a spray foam casing. There were still some issues with frozen pipes on private sites mainly because the utility lines were connected to the applicant's utilities in the basement of their homes, which required the basement to be heated. Insulated skirting was applied to all units throughout all private, commercial, and group sites to protect the plumbing and keep the wind from circulating underneath the unit. In addition, spray foam insulation was applied under the units to cover exposed pipes. Arctic Entryways were applied to all housing units on group and commercial sites and given as an option to households with units on private sites to protect against wind and provide a dry area during the winter months. These entryways initially made some UFAS units noncompliant because the space between the door and the wall of the arctic room was not enough to turn a wheelchair. Adjustments were made and some ramps also had to be reconstructed.

Despite the winterization processes, there were still issues with frozen pipes in group sites, especially with park models constructed by two manufacturers. One manufacturer's units were constructed so that the water lines rested on the frame of the unit, and when the frame froze it would freeze the water line. All 47 units from another manufacturer in the Virgil Workman Group Site had pipe freezing issues. The water lines were heat taped and insulated from the ground to the unit, but there was insufficient insulation in the walls and floor of the unit causing the lines to freeze and break.

FEMA faced housing unit size issues when trying to place units on private sites. Some private sites could fit only a two-bedroom park model. FEMA officials said that units larger than the two-bedroom park model would have made many private sites infeasible. Smaller units had to be used in one site because electrical grids were not able to handle the electric requirements of larger units.



## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---



A winterized unit installed on a private site in North Dakota. An arctic room was constructed, insulated skirting was added, and spray foam was also added to insulate the utility lines. Source: FEMA

### Alabama

---

Alabama was affected by severe storms, tornadoes, straight-line winds, and flooding from April 15 to May 31, 2011. The storm system, which created 64 tornadoes—20 of which were Enhanced Fujita scale 3 to 5—caused 241 fatalities. It resulted in catastrophic or extensive damage to more than 14,000 homes, mobile homes, and apartment units. Presidential Declaration FEMA-1971-DR was signed on April 28, 2011. In total, 43 counties were approved for Individual Assistance.

FEMA officials said that housing could be deployed quickly because one of FEMA's major long-term temporary housing unit storage centers is located in Selma, AL. Consequently, the cost of transport was low and staging costs were nonexistent. Local officials said that the first housing units were placed about 10 days after the disaster, possibly the quickest they have ever seen. Units were placed on 235 private sites and 18 commercial sites, which held an additional 94 units, throughout the approved counties. Applicants moved into temporary housing units from May 11 to August 9, 2011.

Local officials said that the overall housing mission was a big success. However, there were still some problems with the units, including the following:

- Inadequate HVAC systems causing some mold issues;



## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---

- HVAC systems' dampers requiring adjustments; and
- Broken faucets and plumbing issues.

In some cases, the larger units would not fit on private sites. Smaller park models fit the best and allowed survivors to stay on their own property while repairs were made. Local officials said that they would have liked to have had more park models available as the units allow for more private sites to be used and costs to be reduced.



A housing unit on a private lot. Source: FEMA

### Mississippi

---

Mississippi was affected by severe storms, tornadoes, straight-line winds, and associated flooding from April 15 to 28, 2011. The storm system caused 37 fatalities and produced violent super-cell thunderstorms and at least 14 tornadoes. Mississippi was also affected by flooding along the Mississippi River from May 3 to June 17, 2011. Presidential Declarations FEMA-1972-DR and FEMA-1983-DR were signed on April 29, 2011, and May 11, 2011, respectively.



## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---



The rising waters of the Mississippi River surround this home in Vicksburg, MS.  
Source: FEMA

A largely rural area was affected, and the surrounding 50-mile radius that FEMA uses to identify rental resources would have put survivors out of the state to Tennessee. Many of the applicants would not have had the resources to travel between a rental property and their damaged homes or children's schools. Local officials said that getting the 50-mile radius requirement waived and a direct housing mission approved caused delays.

Mississippi received a total of 209 temporary housing units, 159 of which were placed on private and commercial sites. FEMA did not use group sites in Mississippi, but units were placed in five commercial mobile home parks, which included one park expansion in Tunica County.

Problems encountered included the following:

- Getting the waiver for the 50-mile radius;
- Getting the units placed in a timely matter; and
- Swapping out 13 park model units from one manufacturer because of moisture and mold issues.

### North Carolina

---

North Carolina was affected by severe storms, tornadoes, and flooding in April 2011. Hurricane Irene caused flooding from August 25 to September 1, 2011, and was the most severe flooding in North Carolina since Hurricane Floyd in



## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---

1999. Presidential Declarations FEMA-1969-DR and FEMA-4019-DR were signed on April 19, 2011, and August 31, 2011, respectively.



Home affected by Hurricane Irene. Source: FEMA

Because of limited rental housing in the affected area, FEMA placed 245 temporary housing units in North Carolina. Disaster survivors affected by Hurricane Irene were placed in temporary housing units within 60 days of the units' arrival at the staging area. Within 8 months, FEMA assisted 164 families in completing permanent housing plans and vacating the units.



Housing units in a commercial mobile home park. Source: FEMA



## OFFICE OF INSPECTOR GENERAL

Department of Homeland Security

---

Problems encountered included the following:

- Some units had to be returned because of interior water damage that occurred during transport;
- Improper ventilation of the units because of inadequate HVAC systems;
- Plumbing system leaks; and
- Defective microwave ovens.

The locations most affected by Hurricane Irene were subject to flooding, and therefore restricted as to the type of temporary housing permitted by State or local zoning codes. Initially, temporary housing units were not a viable option in those locations because of the number of displaced survivors; agreement was reached by the counties, the State, and FEMA to allow several two-bedroom park model units to be located in the area. Those units had to be removed from potential flood zones prior to the start of hurricane season, the following June.



FEMA contractors placing a temporary housing unit on the private site.  
Source: FEMA





## **Appendix D**

### **Major Contributors to This Report**

Kaye McTighe, Director  
Nigel Gardner, Audit Manager  
Donald Norman, Audit Manager  
Kimberly Letnaunchyn, Program Analyst



## **Appendix E**

### **Report Distribution**

#### **Department of Homeland Security**

Secretary  
Deputy Secretary  
Chief of Staff  
Deputy Chief of Staff  
General Counsel  
Executive Secretary  
Director, GAO/OIG Liaison Office  
Assistant Secretary for Office of Policy  
Assistant Secretary for Office of Public Affairs  
Assistant Secretary for Office of Legislative Affairs  
DHS Component Liaison  
Acting Chief Privacy Officer

#### **Federal Emergency Management Agency**

Administrator  
Acting Chief of Staff  
Chief Financial Officer  
Chief Counsel  
Chief Procurement Officer  
Acting Chief Privacy Officer  
Associate Administrator for Policy and Program Analysis  
Director, Program Analysis and Evaluation Division  
Director, Risk Management and Compliance  
Audit Liaison, FEMA (Job Code 12-114-FEMA-EMO)

#### **Office of Management and Budget**

Chief, Homeland Security Branch  
DHS OIG Budget Examiner

#### **Congress**

Senate Committee on Appropriations, Subcommittee on Homeland Security  
Senate Committee on Homeland Security and Governmental Affairs  
House Committee on Appropriations, Subcommittee on Homeland Security  
House Committee on Homeland Security  
House Committee on Oversight and Government Reform

## ADDITIONAL INFORMATION AND COPIES

To obtain additional copies of this document, please call us at (202) 254-4100, fax your request to (202) 254-4305, or e-mail your request to our Office of Inspector General (OIG) Office of Public Affairs at: [DHS-OIG.OfficePublicAffairs@oig.dhs.gov](mailto:DHS-OIG.OfficePublicAffairs@oig.dhs.gov).

For additional information, visit our website at: [www.oig.dhs.gov](http://www.oig.dhs.gov), or follow us on Twitter at: [@dhsoig](https://twitter.com/dhsoig).

## OIG HOTLINE

To expedite the reporting of alleged fraud, waste, abuse or mismanagement, or any other kinds of criminal or noncriminal misconduct relative to Department of Homeland Security (DHS) programs and operations, please visit our website at [www.oig.dhs.gov](http://www.oig.dhs.gov) and click on the red tab titled "Hotline" to report. You will be directed to complete and submit an automated DHS OIG Investigative Referral Submission Form. Submission through our website ensures that your complaint will be promptly received and reviewed by DHS OIG.

Should you be unable to access our website, you may submit your complaint in writing to: DHS Office of Inspector General, Attention: Office of Investigations Hotline, 245 Murray Drive, SW, Building 410/Mail Stop 2600, Washington, DC, 20528; or you may call 1 (800) 323-8603; or fax it directly to us at (202) 254-4297.

The OIG seeks to protect the identity of each writer and caller.