

December 6, 2005

The Honorable James M. Inhofe
Chairman, Committee on Environment
and Public Works
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

On behalf of the U.S. Nuclear Regulatory Commission (NRC), I am writing in response to the Committee on Environment and Public Works' request for information regarding NRC's preparation and response to Hurricane Katrina. Enclosed please find the answers to the questions raised in your November 15, 2005 letter. I have also provided a copy of this response to Senator James M. Jeffords by separate letter.

The mission of the NRC, under the Atomic Energy Act of 1954, as amended, is to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment at nuclear power plants and materials facilities. In carrying out this mission, the NRC takes an integrated approach to safety, security, and emergency preparedness. This approach, combined with the defense-in-depth strategy we use for licensing the design, construction, and operation of nuclear power plants, provides substantial protection against severe natural phenomena, such as hurricanes and tornados.

The well established capabilities and procedures of the NRC, our Federal and Agreement State partners, and our licensees proved to be effective during Hurricane Katrina for NRC areas of responsibility. The NRC is committed to continuous assessment and enhancement of these capabilities and has created a task force to assess the preparations for and response to the 2005 hurricane season by the NRC, affected States, and licensees. The NRC will share the Task Force's final report with you when it is completed.

I would like to thank you again for the privilege to appear at the hearing to discuss the NRC's preparations and response to Hurricane Katrina. If you have additional questions regarding these matters, please contact me.

Sincerely,

/RA/

Nils J. Diaz

Enclosure: As stated

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Ranking Member, Committee on
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- Q1. Mr. Chairman, as I understand it, the NRC had very good information from and communication with power plant licensees during Hurricane Katrina. I know accounting for and securing the more diffuse licensees, such as universities, medical facilities, and industrial sources is a significant challenge. How long did it take NRC to be able to determine that nuclear materials held by non-power plant licensees were secure? What lessons have you learned from that experience?
- A1. The U.S. Nuclear Regulatory Commission (NRC) and the Agreement States of Alabama, Louisiana, and Mississippi share the regulatory oversight responsibilities for ensuring the safety and security of radioactive materials in the region affected by Katrina. These Agreement States have regulatory authority over approximately 98 percent of the total number of radioactive material licensees located within their borders. The NRC has jurisdiction over the remainder, which includes Federal facilities such as U.S. military installations and medical facilities operated by the Veterans Administration.

Before Hurricane Katrina made landfall in Louisiana, NRC coordinated with Louisiana on the State's preparations for the hurricane, including activities involving Louisiana licensees. NRC Region IV contacted and offered assistance to the Louisiana Department of Environmental Quality (LDEQ) and made arrangements for further contacts with LDEQ after the hurricane passed. NRC management was briefed on NRC and Agreement State material licensees in Louisiana and NRC provided staff to the Homeland Security Operations Center. NRC Region IV also coordinated with FEMA Region VI and provided staff to the Regional Response Coordination Center.

The NRC worked closely with its Agreement State partners and its own material licensees (Federal facilities) in those States to monitor the safety and security of radioactive sources of concern during the recovery from Hurricane Katrina. The NRC contacted its licensees (Federal facilities) possessing International Atomic Energy Agency Category 1 and Category 2 sources located in the affected States to obtain additional information on the status and security of facilities and materials listed in an existing database.

NRC confirmed that sources of concern at Federal facilities were secure by September 8, 2005. For sources regulated by the Agreement States, on September 1, 2005, Alabama confirmed its Category 1 and 2 sources were secure and, on September 7, 2005, Mississippi confirmed all Category 1 and 2 sources had been accounted for, except for one at the Stennis Space Center; this source was confirmed as secure on September 12, 2005. By October 4, 2005, the LDEQ had visited each Category 1 and 2 facility in Louisiana that was affected by the hurricane and had reasonable assurance that sources were secure because the buildings were structurally sound and locked, and it appeared that vandalism had not occurred. Local law enforcement and the National Guard were used throughout the recovery period to provide security across the New Orleans area. NRC is continuing to work closely with the LDEQ to assess further the status of radioactive sources within its regulatory purview.

The NRC discussed the availability of resources for assisting in recovery efforts with its Federal partners, including the Centers for Disease Control, DOE, EPA, FEMA, and the U.S. Army Corps of Engineers. The NRC also assisted Louisiana with its request for use of the DOE's Aerial Monitoring System to detect any misplaced or missing radiation sources. On September 13, 2005, the NRC dispatched staff to the LDEQ for an extended period to enhance communications and provide assistance. On September 26, 2005, the NRC dispatched additional staff to Baton Rouge and Lafayette, Louisiana, to provide support that included participation in LDEQ field teams.

NRC applied insights from the experience with Hurricane Katrina in preparing for and responding to Hurricanes Rita and Wilma. For example, because the communication infrastructure was still challenged after Hurricane Rita made landfall, response teams dispatched on September 26, 2005, to Louisiana were equipped with additional communications equipment, including cell phones that can be used when public telephone networks are not available or are overloaded. NRC also reached out to Texas and Louisiana in advance of Hurricane Rita making landfall to discuss actions proposed by the States to assure that their licensees were taking action to secure large sources in advance of the storm making landfall.

Currently, NRC is evaluating lessons learned from Hurricane Katrina and has established an agency-wide task force that will review NRC, State, and licensee preparations for and response to natural phenomena, such as hurricanes, to identify and recommend areas for improvement. The task force is expected to deliver a report with recommendations to the NRC Executive Director for Operations in February 2006. Depending on the conclusions of the task force and direction from the Commission, regulatory changes or other actions could be proposed. The final report will be made public.

- Q2. Mr. Chairman, communications are critical to NRC's successful monitoring of power plant licensees in the event of a hurricane. Would you comment on NRC's use of various modes of communications, such as standard phone lines, satellite or other devices, Internet during Hurricane Katrina, have you assessed the merits and limitations of each, and do you deploy all of them during a hurricane event?
- A2. NRC's experience in responding to Hurricanes Katrina and Rita has confirmed the importance of deploying and using diverse communication systems. Even without significant damage to the telecommunication infrastructure, commercial systems may become overwhelmed with the high volume of communication traffic in the wake of an emergency. Our deployment of a variety of communication systems contributed to our success in maintaining contact with our licensees and response teams. NRC is currently evaluating communication challenges as part of our ongoing lessons learned efforts and will evaluate opportunities for additional enhancements to our response program in the area of communications.

The NRC relies on several methods for communicating with power plant licensees and NRC's resident inspector staff. Licensees may communicate with NRC through the use of commercial public telephone network systems, the Federal Telecommunications System (FTS), or cellular communications. In addition to the commercial

telecommunication lines maintained by licensees, the NRC provides a limited number of Emergency Telecommunications System (ETS) lines using direct access lines to the Federal Government's long distance network, or FTS provider, to nuclear power plants. NRC resident inspector offices are also connected to the FTS network. These many systems for communication provide NRC the capability of maintaining contact with the licensees in the event of a hurricane.

At nuclear power plants, these lines are routed to the plant control room and the licensees' emergency operations facilities, where key response personnel are located during an event. These dedicated lines provide access to long distance networks independent of the local telephone switch.¹ In addition, if a problem occurs with the dedicated direct access FTS lines, the NRC has provided for telephone service priority with the government contractor to prioritize restoration or repair of the lines. FTS communication lines located in the control room that link the NRC and its licensees are tested daily. Licensees can also communicate with NRC through the use of cellular service, although this would typically be used as a backup if commercial or FTS lines were not available. NRC resident offices are also equipped with cell phones and satellite phones which are tested regularly.

NRC regional offices are equipped with diverse modes of communication to support their response functions and teams, including response teams dispatched in the field. Communication devices include a mix of cell phones, secure cell phones, portable satellite phones, and hand-held walkie-talkies for the NRC response teams. These communication devices and systems are tested regularly. NRC regional response teams also have access to the Government Emergency Telephone System (GETS) which provides priority service to GETS card holders during emergencies when commercial phone systems and the FTS system may experience a high volume of communication traffic.

The NRC Region IV incident response center in Arlington, Texas, which dispatched several staff members to Louisiana and Mississippi for responses to Hurricanes Katrina and Rita, supplemented its communication devices in advance of the 2005 hurricane season to provide additional diversity in the available means of communication. All regional communication devices and services noted above, except for walkie-talkies, were deployed with the NRC Region IV responders during the response to Hurricanes Katrina and Rita. In addition to the communication devices deployed from Region IV, NRC deployed additional satellite phones from other NRC regional offices to supplement communication devices available to NRC staff and the licensees in Louisiana following the passage of Hurricane Katrina.

As you are aware, there was significant damage to the communication infrastructure in the New Orleans area as a result of Hurricane Katrina. Surrounding areas in Louisiana and in Mississippi also experienced some telecommunication disruption. The disruption of telecommunication service affected both the River Bend and Waterford-3 power

¹Some licensees have elected to use preexisting licensee communication networks to provide access to long distance networks independent of the local telephone switch. This option was approved by the Commission in 2000.

plants in Louisiana. In addition, the Grand Gulf power plant in Mississippi also experienced some disruption of telecommunication service following passage of the storm.

For the River Bend and Grand Gulf power plants, the licensee and NRC staff relied upon a combination of commercial land lines, FTS service, cell, and satellite phones, and use of the GETS service for communications. Commercial and FTS systems experienced frequent temporary disruption because of the high volume of calls being placed on these lines. The NRC ETS lines installed in the River Bend and Grand Gulf control rooms experienced temporary disruptions due to problems that the service provider experienced with equipment in the New Orleans area. The infrastructure for these direct access lines was routed through New Orleans. However, NRC and the licensees were able to maintain contact through the plant control rooms and emergency operations facilities via commercial lines. Satellite and cell phones were used intermittently during periods when communication traffic volume was high and calls could not be placed successfully via commercial and FTS lines.

For the Waterford-3 plant, communication systems experienced more substantial damage, and normal communication systems were unavailable for a longer period of time. Prior to Hurricane Katrina making landfall, the licensee had two satellite phones available for communicating with the NRC, State, and local response organizations. Immediately following passage of Hurricane Katrina, NRC relied upon use of cell and satellite phones for communication with the plant and resident inspector staff. In addition to these phones, the licensee had an "internal" phone system available that connected the licensee's corporate center in Jackson, Mississippi, with the River Bend, Grand Gulf, and Waterford-3 plants. NRC was able to communicate with licensee management through this commercial communication network throughout the recovery period. Within days of the passage of Hurricane Katrina, the licensee contracted with a commercial vendor to obtain a mobile satellite phone unit which contained six satellite phone lines and additional portable satellite phones for use in communicating with NRC, State, and local response organizations. This improved communications between NRC and the Waterford-3 site, but was only considered supplemental since reception through the satellite service may be disrupted during inclement weather. The licensee had additional land communication lines installed within days that were routed outside the New Orleans area, specifically through Little Rock, Arkansas, to provide more stable communication systems. These land lines were used for routine communications between NRC and staff at Waterford-3 until the pre-Katrina land lines routed through New Orleans were restored weeks later.

Even with the installation of the additional land lines, commercial phone service was occasionally unavailable due to the high volume of communication traffic over the public telephone network system. NRC relied upon use of cell phones and the GETS service to communicate with its response staff and resident inspectors as a supplemental backup during these periods. Because the volume of communication traffic remained high and the commercial telecommunication infrastructure capacity was limited until land lines and switch networks could be restored or circuits rerouted, the licensee deployed cell phones to State and local response organizations and NRC Region IV. During periods when other commercial systems were overwhelmed with call traffic, these cell phones could be operated as a long-range, digital walkie-talkie allowing users to

communicate even when the network is down. The NRC Region IV office had procured cell phones to supplement its communications kits in advance of Hurricane Katrina, but these were not received until just before Hurricane Rita developed. NRC Region IV deployed cell phones with response teams that were sent to Louisiana following Hurricane Rita, and these cell phones provided reliable communications when other cell and satellite phones experienced reception disruptions.

NRC did use the internet to communicate with its resident inspectors and licensees during the response to Hurricane Katrina using land lines. Internet and e-mail connections were reliable with the licensee's corporate offices in Jackson, Mississippi, where communication systems were not significantly disrupted. NRC resident offices at the Grand Gulf, River Bend, and Waterford-3 plants were unable to connect to the NRC Wide Area Network or the internet for some period because they are serviced by communication lines that were routed through New Orleans. The switch network for these land lines was unavailable for a period of time until circuits could be rerouted.

- Q3. Do you find an Operations Center capability at headquarters to be a critical component of the NRC's ability to track and respond to hurricanes?
- A3. Yes, the NRC Headquarters Operations Center is a critical component of NRC's ability to track and respond to hurricanes. The NRC maintains a designated incident response organization at its Headquarters office in Rockville, Maryland as well as its four Regional offices (Region I: King of Prussia, Pennsylvania; Region II: Atlanta, Georgia; Region III: Lisle, Illinois; Region IV: Arlington, Texas).

NRC routinely prepares for, monitors, and responds to every hurricane using established response procedures. Pursuant to its assigned role under the National Response Plan and a Memorandum of Understanding between the Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA) and NRC, NRC routinely coordinates with DHS/FEMA in advance of any hurricane making landfall and potentially affecting NRC-licensed facilities, such as nuclear power plants or materials facilities.

The NRC Headquarters Operations Center is continually staffed (24 hours a day, 365 days a year) for receiving emergency and non-emergency notifications from NRC licensees, government agencies, State Agencies, and/or private entities. NRC Headquarters maintains the leadership in integrating the agency's response to hurricanes through internal notifications and notifications to other Federal departments/agencies and, if appropriate, licensees, Members of Congress, and State agencies. The Chairman has ultimate authority for all NRC functions pertaining to an emergency involving an NRC licensee. The Chairman may delegate, in whole or in part, his authority to another Commissioner or other NRC official. NRC Regions I, II, III, and IV maintain an incident response program under the leadership of the respective Regional Administrator with oversight by the NRC Headquarter's Executive Team.