MINUTES

INDEPENDENT PANEL REVIEWING THE IMPACT OF
HURRICAN KATRINA ON COMMUNICATIONS
NETWORKS

DATE OF MEETING: Monday, March 6, 2006 and Tuesday, March 7, 2006

LOCATION: Mississippi e-Center at Jackson State University, 1230 Raymond Road, Jackson, MS 39204.

PANEL MEMBERS PRESENT: Nancy J. Victory (Chair), Carson Agnew, Michael Anderson, Robert G. Bailey, Kevin Beary, Greg Bicket, Joseph Booth, Steve Davis, Robert G. Dawson, Stephen A. Dean, Steve Delahousey, Dave Flesssas, Martin D. Hadfield, Jim O. Jacot, Tony Kent, Kelly Kirwan, Jonathan D. Linkous, Adora Obi Nweze, Billy Pitts, Michael Sauter, Marion Scott, Kay Sears, Edmund M. Sexton, Sr., Edwin D. Smith, Patrick Yoes

Eduardo Pena and William Smith did not attend either day of the meeting. Gordon Barber participated in the meeting on behalf of BellSouth in lieu of Mr. Smith.

FCC PERSONNEL PRESENT: Kevin J. Martin (FCC Chairman), Deborah Taylor Tate (FCC Commissioner), Lisa Fowlkes (Designated Federal Officer), Jean Ann Collins (Alternate Designated Federal Officer). Staff from Chairman Martin's and Commissioner Tate's offices also attended the meeting.

OTHERS PRESENT: *See* Appendix 1.

MEMBERS OF THE PUBLIC PRESENT: There was an estimated total of 100 members of the public in attendance at the meeting on Monday, March 6, 2006. There was an estimated total of 50 people in attendance at the meeting on Tuesday, March 7, 2006. These numbers do not include those scheduled to give oral testimony to the Panel.

DOCUMENTS DISTRIBUTED AT THE MEETING: *See* Appendix 2.

PURPOSE: The purpose of the meeting was to receive oral testimony from interested parties regarding the impact of Hurricane Katrina on communications infrastructure, recovery process and procedures and emergency communications.

<u>**MONDAY, MARCH 6, 2006**</u>

CALL TO ORDER AND OPENING OF MEETING: Nancy J. Victory called the meeting to order at 10:00 a.m. and delivered brief opening remarks. In her remarks, Ms. Victory welcomed everyone to the Panel's second meeting, including Congressman Chip Pickering, FCC Chairman Kevin J. Martin and FCC Commissioner Deborah Taylor Tate. Ms. Victory welcomed the Panelists and thanked the Mississippi e-Center at Jackson State University for hosting the meeting. Ms. Victory noted that Mississippi was an appropriate venue for the Panel's second meeting in light of the sustained severe damage in the state caused by Hurricane Katrina.

Ms. Victory explained that the purpose of the meeting was to gather information to allow the Panel to fulfill its charge. She noted that speakers' contributions at this meeting are critical to

enabling the Panel to correctly understand what happened, what went right, what went wrong and how best to ensure that the next time disaster strikes, the communications sector, will keep and augment the successes, but avoid the pitfalls that delayed recovery and hindered critical emergency communications.

WELCOMING REMARKS

Congressman Chip Pickering

Congressman Pickering welcomed everyone to the meeting, stating that, more importantly, he welcomed their contributions and comments to what he hoped would lead to solutions and plans so that we will have the best communications capability in the most horrific of storms, crises or events that could happen.

He thanked Chairman Martin for being at the meeting and for calling for the Independent Panel. He also thanked Ms. Victory for her leadership at the Commerce Department. He also welcomed Commissioner Tate.

Congressman Pickering recognized the heroism of first responders in the face of the worst natural disaster in American history. Noting that the need for interoperability was noted by the 9-11 Commission, Congressman Pickering stated that he hoped that after all the investigations and independent panels, and before the next hurricane season, we will have something in place that is survivable, mobile interoperable and that the federal resources are there to support each and everyone at the state and local levels.

FCC Chairman Kevin J. Martin

Chairman Martin welcomed everyone to the Panel's second meeting, particularly the individuals who had volunteered to give oral presentations at the meeting. He also thanked Mississippi e-Center at Jackson State University for providing the facilities for the meeting and Congressman Chip Pickering for his continuing support of the Commission's work in response to the hurricanes. Chairman Martin noted that the Panel is a unique endeavor in that it brings together experts from all sectors of the communications industry and experts from public safety organizations. He also noted the many facets of the communications industry, public safety sector and public interest organizations that were represented by those giving oral testimony at the meeting.

Chairman Martin described the extraordinary destruction to facilities in the region as a result of Hurricane Katrina as well as the FCC's efforts to respond to the hurricane. He made the following suggestions to improve our ability to serve the public in the event of another disaster: (1) ensure that the public has the tools necessary to be alerted when an emergency is coming and to contact first responders; (2) enable first responders to communicate seamlessly during a disaster; and (3) ensure that all communications providers develop and adhere to best practices to ensure reliability and quick restoration of services in the event of a disaster. Finally, Chairman Martin expressed his desire for greater use of Internet Protocol (IP) technologies that are capable of changing and rerouting telecommunications traffic.

FCC Commissioner Deborah Taylor Tate

Commissioner Tate commended Chairman Martin for establishing the Panel and Ms. Victory for taking so much time and effort to lead the Panel. She expressed hope that this could be used to

enhance the efforts that the Commission is undertaking not only to respond to the devastation caused by Katrina, but to protect our critical infrastructure in the future.

Hu Meena, President, Cellular South

On behalf of Cellular South, Mr. Meena welcomed everyone to Mississippi. He noted that the Mississippi Gulf Coast is often included as a footnote or add-on in discussions about the devastation caused by Hurricane Katrina. He noted that according to the Red Cross, Katrina destroyed 68,000 homes in Mississippi and caused major structural damage to another 60,000 homes. To date, approximately 31.8 billion cubic yards of debris have been collected in Mississippi. Unemployment in the Biloxi Gulfport metropolitan area has jumped from a rate of 5.9 percent to 26.2 percent in the month following Katrina and was as high as 20 percent at the end of 2005.

Mr. Meena noted that while Cellular South had some success during the aftermath of the storm in restoring communication services, it also learned some valuable lessons. For example, he noted that restoration of communications should have the highest priority in the allocation of resources following a natural disaster, including fuel and road access to sites. In addition, he stated that wireless services, while vulnerable to catastrophe, can and should be designed and delivered in a manner that minimizes disruption and allows for quick restoration. Finally, he noted that the robustness of wireless networks should be known and evaluated by emergency management personnel before a disaster occurs.

FIRST PANEL

Harlin McEwen

Mr. McEwen is the Chairman of the Communications and Technology Committee, International Association of Chiefs of Police. Mr. McEwen identified three priorities for public safety communications: (1) reliable agency-specific voice communications; (2) reliable inter-agency voice communication which is commonly called interoperability; and (3) reliable data communications.

Mr. McEwen noted that five outcomes from Katrina stood out in the reports regarding the catastrophe: (1) tower/infrastructure failures; (2) power failures; (3) public switched telephone network and network infrastructure failures, (4) failure to plan for personnel problems resulting from a disaster or catastrophe; and (5) a need for deployable communications systems. Mr. McEwen observed that public safety today faces increased and more complex communications requirements. He noted that most day-to-day operations require better coordination among departments within a jurisdiction while preparation for disasters and catastrophic events require better communications across multiple levels of government. Mr. McEwen also stated that existing communications must be maintained and improved. He also noted that we have the advantage of some key resources such as new spectrum and ingenuity. As an example, he pointed out that the 700 MHz band has generated the manufacture of standardized dual band voice radios covering both the 700 MHz and 800 MHz spectrum. That means that public safety agencies can start to build up 700 MHz capability at the same time they expand or replace their 800 MHz radios. He also noted that the legislation to clear 700 MHz by February 2009 has also given rise to increased public safety and industry discussions on data technology.

Mr. McEwen stated that both satellite operators and radio manufacturers are developing ways to deploy satellite as a backup to provide communications when natural disasters like Katrina

disable portions of the traditional land mobile radio infrastructure. He also noted that public safety users and manufacturers are examining how commercial networks and dedicated private networks could be better leveraged and connected to provide more seamless mobility. Finally, Mr. McEwen noted that all of these new ingenious tools will require funding to implement.

Keith Parker

Mr. Parker is the Director of Emergency Medical Service, State of Mississippi. He spoke on behalf of the National Association of EMS Officials. Mr. Parker described the impact on Hurricane Katrina on the communications systems in Mississippi. In particular, he noted that delivery of needed services was delayed due to the inability of the appropriate people to communicate with each other. For example, the Mississippi Department of Health was unable to communicate with local emergency medical service authorities and hospitals adequately in order to dispatch state-contracted ambulances to needed areas. Once state assets were sent to those locations, they were unable to obtain status reports or monitor progress being made. Mr. Parker recommended that a common national radio frequency be made available. In addition, he suggested that communications must be survivable and interoperable between various local, state, and federal stakeholders and that continuity of operations planning must be effectively supported and widely distributed well in advance of problems such as those Katrina generated. Finally, he argued that all users must be trained on interoperability and back-up systems to ensure continuity of operations. Mr. Parker also noted the critical need for planning on the local, state and national levels.

Juliette M. Saussy, M.D.

Dr. Saussy is the Director of Emergency Medical Service for the City of New Orleans, Louisiana. She spoke on behalf of the National Association of EMS Physicians. Dr. Saussy described the impact of Hurricane Katrina on emergency medical service and fire communications in the City of New Orleans. She emphasized the need for operable communications that includes redundant systems. She also expressed the need for one line of communication governed by universal policies and procedures. She noted the need for standardization of equipment, including master control sites. Dr. Saussy emphasized the need for functional and coordinated planning that is followed, practiced and the result of resourceful thinking. In addition, she argued for the need to honestly assess performance and a forum for all levels of participation.

Dr. Saussy stressed the need to address regional or boundary issues and the need to have a clear message from a single agency. She also noted the need for increased bandwidth availability, particularly with respect to emergency medical services. In addition, she identified the need for standardization of interoperability, standardization of calling frequencies, encouragement of open communications and financial support from SafeCom and the Department of Homeland Security.

Sandy Bogucki, M.D.

Dr. Bogucki is a Senior Medical Advisor with the U.S. Department of Health and Human Services. She also spoke on behalf of the National Association of EMS Physicians. Dr. Bogucki described the impact of Hurricane Katrina in the Gulf Coast region from her perspective She noted that the most critical part of communications for all of EMS as well as for all of HHS response is the ability to communicate with hospitals. The loss of communications with the hospitals was critical. They had intermittent cell service. Although they had satellite phones, Dr. Bogucki noted that there were tremendous issues around user capabilities, user understanding and maintenance.

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George W. Sholl

Mr. Sholl is the Director of the Jackson County, Mississippi Emergency Communications District. Mr. Sholl discussed the impact of Hurricane Katrina on communications in Jackson County, Mississippi. He identified training as a major problem area with respect to the Jackson County system. He stated that they need to put more emphasis on planning, training and testing.

Woody Glover

Mr. Glover is the Director of the St. Tammany Parish Communications District. Mr. Glover described the various failures with their 911 system during the hurricane. Specifically, he noted the loss of the telephone network due to tree and bridge collapses. He also noted the loss of their tandem which, in turn, resulted in a loss of the 911 system. He indicated that attempts to restore the 911 system were delayed due to a lack of training of technicians regarding the Parish's back-up plan for routing 911 calls.

Jenny Hansen

Ms. Hansen is a contractor for the U.S. Department of Transportation and coordinates the Next Generation 9-1-1 Program. Ms. Hansen described DOT's efforts to improve 911 technology.

Follow-up Questions and Discussion

During the Question and Answer period, Sheriff Edmund "Ted" Sexton asked Mr. McEwen to describe the deployable system he referenced in his remarks. Mr. McEwen responded that such a system would include cellular on wheels ("COWs"). He also suggested that public safety personnel should have additional training on the use of satellite phones.

Steve Davis asked Mr. McEwen whether the "International Chiefs of Police" or any of the organizations he works with find the Emergency Alert System (EAS) helpful. Mr. McEwen responded that, in most cases, EAS is not functional or very helpful. He noted the need for emergency alerting to be multifaceted. Sheriff Kevin Beary agreed, adding that IP should be included so that subscribers could receive alerts on blackberries.

Adora Nweze asked Dr. Saussy, Mr. Parker and others about concerns reaching people who speak other languages or those in rural areas. Dr. Saussy responded that they need to address cultural and language differences. Mr. Parker responded that they need to have local officials identifying the community and seeing what resources are needed within each of their rural areas. Ms. Hansen encouraged the inclusion of special needs communities.

Robert Dawson asked what Mr. McEwen's recommendation to the FCC would be to make sure that all critical infrastructure industries are at the table along with first responders when there are discussions about frequencies, funding and anything else that has to do with communications. Mr. McEwen responded that he thought the Panel should strongly recommend that power companies and all others that would be involved have further discussions about how to make this work better.

Ms. Victory asked the speakers for recommendations on how a coordination committee would be structured. Mr. McEwen responded that the structure needs to include all players – local, state

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and federal. Dr. Saussy suggested that appropriate people be appointed quickly and that they begin the process of meeting regularly and having a dialogue.

Kay Sears commented that many companies were ready to deploy equipment, but could not get access to the region. Mr. McEwen responded that there needed to be a national strategy for credentialing.

SECOND PANEL

Bruce Deer

Mr. Deer is the President of the American Association of Paging Carriers as well as President of Skytel Communications, a wireless paging and messaging company within Verizon. Mr. Deer provided an overview of the paging industry. During his presentation, he noted that paging worked reliably both during 9-11, after major natural disasters as well as Hurricane Katrina. He explained that paging is an effective communications technology for mission critical applications because it is reliable, economical and fast. Specifically, he explained that pagers are good at penetrating buildings, can be used to do broadcast alerts and are a tested and mature technology. He also noted that paging is connected via satellite and thus is not dependent on landline connections in an impacted area. Thus, he argued that paging is a "great method" for first responders to use before, during and after a natural type of disaster.

Vincent D. Kelly

Mr. Kelly is President and Chief Executive Officer of USA Mobility, a provider of paging services. Mr. Vincent stated that while the mass market for paging services has declined in recent years as mobile phone users have increased, paging devices continue to play a critical role for first responders and are still used extensively by police officers, fire fighters, and rescue workers. In addition, hospitals and health clinics, as well as government agencies, rely heavily on paging services. He also noted that they service over 80% of Fortune 1000 companies. Mr. Kelly explained that the reasons for this continued use of paging by these mission critical organizations are simple and straightforward: (1) paging's low cost relative to mobile telephony; (2) paging's reliability due to its simulcast networks and long battery life, and (3) paging's network ubiquity. He noted that USA Mobility's paging network reaches more than 90% of the U.S. population, including the largest 100 markets and more than 1,000 cities overall. As of September 30, 2005, USA Mobility provided service to over 5.1 million messaging devices.

Mr. Kelly described USA Mobility's provision of service. He also noted the steps USA Mobility took in preparation for Hurricane Katrina such as testing their systems extensively, deploying critical personnel to strategic locations armed with equipment necessary to rebuild transmitter sites, and establishing backup systems to supplement their network's inherent redundancy.

Mr. Kelly offered suggestions for the Panel's consideration such as: (1) considering methods of improving the access by technicians to communications facilities needing repair immediately after a disaster, especially those supporting search and rescue or medical relief efforts; (2) pursuing a public/private partnership to establish strategically located, secure rooftop disaster locations with emergency power and access to adequate fuel reserves; (3) working with the Department of Homeland Security and FEMA to advocate better communication between responders and service providers and allow telecommunications providers to either place temporary coverage trailers in the agencies staging areas or a coordinated safe location which would improve the wireless access of both the government and the affected community.

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<u>Jay Monroe</u>

Mr. Monroe is the Chairman and Chief Executive Officer of Globalstar, LLC. Mr. Monroe stated that in the aftermath of Hurricane Katrina, Globalstar was one of a very small number – perhaps fewer than five – of telecommunications companies serving the Gulf Coast region whose services were not disrupted. He noted that while there has been much discussion about the lack of "interoperability" among proprietary radio systems used by local, state and federal police, this was not an impediment for those agencies that had satellite phones at their disposal after the hurricane. This is because satellite phones, which use globally-allocated radio spectrum, and which do not rely on the terrestrial infrastructure to function are operable with any other satellite phones and with any other device that is connected to the public switched telephone network or to a wireless network anywhere.

Mr. Monroe summarized Globalstar's actions both before and immediately following the hurricane. In advance of Hurricane Katrina, Globalstar: (1) prepositioned its phone inventory to strategic locations such as Baton Rouge; (2) reallocated the coverage footprints of its Texas and Florida earth stations to increase its capacity in the Gulf Coast region; and (3) prepared its network operations team to monitor usage patterns in real time to manage the anticipated traffic increase effectively.

Immediately after the hurricane moved out of Louisiana and Mississippi, Globalstar: (1) within 24 hours, increased available network capacity in the area by 60 percent; (2) donated 100 phones each to the governors of Louisiana and Mississippi; (3) within about one week, activated and deployed roughly 10,000 additional phones to FEMA and other state and federal agencies; (4) activated and employed some 2,000 simplex data terminals so that FEMA and other agencies could reliably track their mobile and fixed assets such as generators and trailers; (5) doubled the capacity for Globalstar calls to landline phones; (6) continuously reallocated ground station capacity and coverage to maintain service quality in the Gulf Coast region; and (7) developed, manufactured and sent to FEMA four transportable emergency communications system "picocells" which mate GSM phones with Globalstar fixed phones and use satellite for backhaul to create self-contained local area networks.

Mr. Monroe offered several observations and recommendations for the Panel's consideration. First, he noted that some first responders, who had stocked satellite phones and other communications equipment, had not received adequate training in its proper use. This lack of training accounted for a sizeable number of communications failures during the first 48 hours after the hurricane. Accordingly, it is essential that first responders and other emergency personnel receive proper training on the operation of satellite equipment in advance. Second, many first responders did not have pre-emergency deployment plans that could be nvoked in advance of an actual emergency. As a result, Globalstar had difficulty determining where to send its phones and other equipment for staging into the disaster area. Thus, it is vital that first responders, preferably through cooperation at both the state and federal level, publicize a plan to deploy operable equipment in advance of an emergency.

Third, although local and state first responders had operable Globalstar phones for emergencies, they either did not know how to activate their service or did not have funding readily available. Mr. Monroe suggested that if local, state and federal agencies improved their contracting methods and pooled their emergency communications funds, they could share the cost statewide, or even nationally, of emergency preparedness and could, consequently, receive volume discounts on their minutes of use.

Fourth, Mr. Monroe noted that first responders often did not have the same state-of-the-art equipment that large commercial customers have. He noted that local, state and federal agencies and commercial operators must work together to develop and deploy new solutions for emergency preparedness. In summary, Globalstar recommended that first responders training employees on the proper use of equipment, deploy emergency equipment in advance of a disaster, work together to share resources and funding and work with industry to procedure and maintain state-of-the-art equipment.

Wanda Montano

Ms. Montano is Vice President of Regulatory and Industry Affairs at US LEC. She noted that, as a telecom carrier, US LEC experienced many of the same issues that were discussed by various panelists at the January 30, 2006 Katrina Panel meeting. These included: (1) communications, (2) knowing who to call to coordinate resolution of issues, (3) coordination between telecom, power and government agencies, (4) the need for security for personnel to escort employees, (5) designation as first responders so that they could get back into their site, and (6) delivery of fuel. She recommended that an inventory of telecom providers with contact information be maintained so that people would know about the multiple communications networks available.

Greig Prejean

Mr. Prejean is Operations Manager for Xspedius Communications, LLC. Xspedius Communications is a competitive local exchange carrier (CLEC) that offers local, long distance, and integrated communications services in over 20 states, primarily across the South and Southwest. Mr. Prejean noted that, like many other telecommunications carriers, Xspedius personnel and contractors were restricted from gaining access to its key facility locations during the aftermath of the hurricane. This access issue is often compounded by the fact that CLECs do not always have the same name recognition of large utilities such as BellSouth and Entergy. Mr. Prejean stated that Xspedius agrees with the many carriers that have argued that providing first responder status to communications providers is necessary. In addition, similar advance status should be provided to select, pre-identified contractors (e.g., inside wire contractors and fuel companies) that work closely with these companies.

Mr. Prejean also stated that local, state and federal agencies should establish orderly government escort processes in advance of a hurricane to ensure protection of telecommunications personnel and equipment entering an emergency area. Such processes should include not only security escorts but also on-site security where necessary to protect communications facilities.

Mr. Prejean also suggested that access and security procedures should be communicated to telecommunications companies using public sources such as coordinated websites.

Follow-up Questions and Discussion

Ms. Sears asked Mr. Kelly if he could explain in more detail how the paging infrastructure is set up, specifically how the transmitters are connected to the satellite network and why towers can go down in the middle of that network and not interfere with the ability to deliver messages. Mr. Kelly explained that paging companies control their transmitters through satellite, not local landlines. Thus, a transmitter in a given area received its signal from the satellite and then rebroadcasts that signal to the paging user. Because they are transmitting from multiple

transmitters, the loss of one particular transmitter will not likely result in loss of the ability to send messages.

Martin Hadfield asked Mr. Deer whether, in the event of failure of communications links from a Comm Center dispatch unit to a paging uplink system for satellite distribution, there are alternatives for a direct connection from a local emergency center to a paging network. Mr. Deer responded that there are several alternatives such as using a satellite phone to type in a text message, an SMS message or a numeric message.

Sheriff Sexton questioned Mr. Prejean about Xspedius's position regarding security. He questioned why law enforcement resources should be taken from fulfilling life and property responsibilities to provide escort service to communications companies. Mr. Prejean responded that they are looking for support in that area to avoid a larger impact of failing communications services, particularly to public safety agencies which they serve.

THIRD PANEL

Ben Mobias, Tropos Networks[1]

Mr. Mobias is the Territory Sales Manager at Tropos Networks. Tropos Networks makes hardware and software for mesh networking. This technology is used by Tropos' customers to build outdoor, redundant, high speed WiFi wireless networks which provide data, voice and video communications to laptops, PDAs and WiFi phones, all of which are on the ground. Prior to Katrina, Tropos's products were installed as part of a wireless video surveillance network for the New Orleans Police Department. The network was used specifically in high crime areas to help dramatically reduce crime.

Mr. Mobias noted that Skytel Verizon used Tropos to build out temporary communications systems in around 25 locations throughout the Gulf region that were impacted by Katrina. These mainly were for use by FEMA and other organizations to provide Internet access so that reports could be filed, emails could be sent and other types of data communications could be used. He further noted that the Tropos network was used by local and federal government agencies, the American Red Cross and local citizens. These uses varied dramatically from private citizens using the network to contact displaced relatives via the Internet to local government representatives using the network to facilitate expedited processing of building inspection reports. Mr. Mobias recommended that the Panel consider mesh networking as a technology that is beneficial post-disaster recovery and should be included in any kind of report.

Guy W. Clinch

Mr. Clinch is the Director of Programs and Solutions at Avaya, Inc. Mr. Clinch's main point was that communications arranged correctly enables Government to fulfill its responsibility to protect the citizens in disasters. He described Avaya as a significant communications provider at all levels of government that serves more than 90 percent of the Fortune 500 and many of the largest states in the nation and agencies across Washington from the Department of Homeland Security to the White House. As a distinction from telecommunications carriers, Avaya provides advanced phone systems including wireless, voice messaging and call centers. Avaya has a long history in mission critical communications that protects citizens and will enable government to manage disasters and minimize their human toll.

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[1] Mr. Mobias represented Tropos Network in lieu of Kevin Sorenson who was scheduled to appear.

Mr. Clinch stated that what is needed is a "toolkit" of technologies that can apply as circumstances dictate. Some of the tools become part of the permanent infrastructure, and others, such as quickly deployable mobile communications systems, are available upon demand. In the first phase of emergency response, before events unfold, the communications challenge is as much of a message challenge as it is a technology problem. To address this issue, Mr. Clinch suggested using technology that could send phone calls to citizens from the government giving them specific examples about when they should evacuate and how. Mr. Clinch noted that such technology exists and is low-cost, but often under-used.

As the disaster unfolds, command and control of responding organizations and the speed and flexibility of their actions depends upon robust communications. Noting that interoperability stands as a challenge to this, Mr. Clinch noted that the answer lies in solutions that bridge the gap between disparate radio systems of multiple agencies.

Finally, after an event, the goal is to restore civilian well-being. Mr. Clinch noted that Avaya responded after Katrina to an American Red Cross request by urgently deploying call center technology to the Houston Astrodome and Red Cross shelters throughout the country. These services were used by displaced citizens to contact family members and to help process applications for American Red Cross assistance.

Jeff Allen

Mr. Allen is the Core Coordinator for Community Wireless Emergency Response Initiative. Mr. Allen discussed how his organization constructed a community wireless network in the aftermath of Hurricane Katrina. He noted what aspects of the endeavor worked well and what did not. He emphasized that the event proved that community wireless works in a disaster area, that having IP experts and a nimble Internet Service Provider in the zone acted as a force multiplier, making people more effective and that with expanded access to unlicensed spectrum, more progress will be made in the future.

John Pearce

Mr. Pearce is Executive Director, Homeland Security, Harris Corporation. As part of his presentation, Mr. Pearce described Harris Corporation and its efforts in response to Hurricane Katrina. Mr. Pearce outlined a number of recommendations for the Panel's consideration. For the short term, Mr. Pearce recommended: (1) that Government acquire deployable, transportable communications suites, (2) that the private and public sector work collaboratively to establish a strategic inventory of critical communications equipment that could be rapidly configured and deployed to disaster areas; (3) the provision of planning and training for situations in which no on-site communications survive a disaster; and (4) requirement for a seamless collaboration with service providers, network operators and equipment supplier.

For the long term, Mr. Pearce recommended that inoperability be made a priority, that the FCC implement an enhanced digital emergency alert system to ensure that large portions of the American public are able to receive national and/or regional public alerts and warnings, that a regional planning commission be established to ensure seamless coordination between federal, state and local agencies and that blueprints be developed for hardened, survivable interoperable communications networks.

Dr. John Vaughan

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Dr. Vaughan is Vice President, Wireless Systems Business Unit, M/A-Com. Dr. Vaughan stated that he agreed with earlier testimony that operability and survivability are the first order of business. He stated that the second issue is recovery and that, survivability and mobility are important aspects of the recovery effort. Dr. Vaughan also stressed the importance of interoperability. In this regard, he noted several steps that could be taken to address this issue, including lighting up all mutual aid channels all over the country. He also recommended that the Department of Homeland Security install a federal internet-protocol backbone pursuant to Executive Order 12472 connecting local, state, tribal and federal emergency personnel. In addition, he recommended that the FCC issue a blanket order modifying public safety licenses to require licensees, subject to funding from NTIA, to install the necessary transmission equipment and IP connectivity equipment to make their mutual aid channels operational and connect with federal IP networks for disaster recovery.

Dominic F. Tusa

Mr. Tusa is a radio communications consultant with Tusa Consulting Services, Inc. Mr. Tusa emphasized the importance of the Panel understanding the actual conditions on the ground from the perspective of those who were tasked with maintaining and supporting the network operations during the period in question. He recommended that the Panel request statements from key personnel who worked in the area. Mr. Tusa described the impact of Hurricane Katrina on communications facilities in various parts of the affected area. Mr. Tusa noted the importance of training for emergency personnel who would use emergency communications equipment and the expansion of federal grant programs to allow improvements and enhancements to existing radio infrastructure.

Follow-up Questions and Discussion

Billy Pitts asked Mr. Tusa whether interoperability could be achieved if the Department of Homeland Security created a standard of interoperability and only funded states where systems had achieved that standard. Mr. Tusa responded that there should be a two-step process which includes a mechanism to provide for short-term improvements to radio networks and a longer-term vision to support the long-term interoperability needs to get the nation to a P25 network. Dr. Vaughan agreed, stating that we have to make sure that what we have survives this year and then, as we look down the road, we need to connect together "which we have and get that to talk to each other."

Ms. Victory asked whether it makes sense for monies associated with the 700 MHz band to be solely dedicated to interoperative equipment. Dr. Vaughan responded that the 700 MHz spectrum is vitally important because it addresses capacity and spectrum needs issues. He also agreed that some of the money should be used for interoperability.

Michael Anderson asked about interference issues associated with Part 15 devices. Mr. Mobias responded that Tropos Networks does not experience significant interference to its Part 15 system because they operate exclusively outdoors.

Ms. Sears asked Dr. Vaughan if she had a radio from one of his competitors would she be able to talk to a radio manufactured by his company. Dr. Vaughan responded that she could if the radio is on an interoperability networks based on mutual aid channels. Ms. Sears asked whether mutual aid channels provide enough bandwidth to support first responders in a crisis. Dr. Vaughan stated

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that he could imagine a crises in which they would not and that, as a result, it is important to add mobile resources.

DISMISSAL: Ms. Victory dismissed the meeting and indicated that the Panel would re-convene at 9:30 a.m. on Tuesday, March 7, 2006.

TUESDAY, MARCH 7, 2006

CALL TO ORDER AND OPENING REMARKS: Ms. Victory called the meeting to order and introduced the first group of speakers for today's meeting.

FOURTH PANEL

Cheryl Heppner

Ms. Heppner is the Vice Chair of the Deaf and Hard of Hearing Consumer Advocacy Network, a coalition of 16 non-profit organizations of, by and for deaf and hard of hearing, late-deafened and deaf-blind individuals. Ms. Heppner noted that there are 31 million Americans with hearing loss and that the number is rising dramatically with the aging of baby boomers and is expected to reach 78 million by 2030. She noted that hearing aids and cochlear implants can help, but studies show only one out of four people who need a hearing aid are using one. In addition, she stated, that the average person with hearing loss waits seven years to get help, the devices do not restore hearing to normal and most people have only one, which means that they have difficulty locating sound. She explained that people with hearing loss use many strategies and tools for communications. Hurricane Katrina, with its humidity, heavy rain, flooding and high temperatures, eliminated many of these tools. As a result, some people became heavily dependent on visual information. In addition, Katrina's impact of widespread power outages and telecommunications loss made it difficult or impossible to reach professionals who provide visual information through interpreting, transliteration and the translation of spoken words to text. Katrina also cut off people who are deaf-blind from their support service providers who facilitate communication, provide visual and auditory information and act as their sighted guides.

Ms. Heppner noted that people with hearing loss encountered many difficulties. For example, many television stations did not provide visual information or provided insufficient information to convey the gravity of the situation and what actions should be taken. Second, radio, which at times is the one reliable source of information, was useless to people who have more than a mild or moderate hearing loss. Third, the loss of telecommunications resulted in the loss of access of devices such as touch telephones or powerful amplified phones which cannot be operated with off-the-shelf batteries. Ms. Heppner also noted that in Louisiana and Mississippi, the phone numbers for telecommunications relay service users were inoperable for several days even when phone service was available. She also indicated that a number of relay service providers struggled to get permission to be able to install free equipment in shelters so that people who were deaf and hard of hearing would have the same ability to make calls there as others.

Ms. Heppner recommended: (1) that systems should have built-in redundancy to ensure effective communication during preparation, notification, response and recovery; (2) the development of a visually accessible communication system that can operate with off-the-shelf batteries such as text radio; and (3) that shelters be equipped with and providers better trained to ensure effective communication with deaf and hard of hearing evacuees. Ms. Heppner also emphasized the need for a national network that will actively involve and integrate individuals who are deaf and hard of hearing in such things as emergency planning at all levels, equipment testing, disaster

exercises, training of public safety and security personnel and volunteer work with such organizations as the Red Cross and Citizens Corps.

<u>Hilary Styron</u>

Ms. Styron is the Director, Emergency Preparedness Initiative, National Organization on Disability. Ms. Styron provided statistical information regarding the number of individuals with disabilities in Alabama, Louisiana and Mississippi who were directly or indirectly impacted by Hurricane Katrina. Ms. Styron noted that the destruction of the physical environment and communications system caused by Hurricane Katrina had implications for thousands of people with disabilities. People who were deaf or hard of hearing were challenged to access emergency information through television, radio or TTY due to damage and lack of accessible information provided by broadcasters. For example, individuals reaching shelters were met with inaccessible facilities and technology such as TTY, video relay service for American Sign Language users or captioning capabilities. She also noted that several broadcasters failed to caption their emergency information as required by FCC rules. In addition, Government officials failed to activate the Emergency Alert System.

Ms. Styron recommended that: (1) stations commence captioning or contact their captioning service promptly before or contemporaneously with any broadcast coverage of a pending or imminent emergency that endangers the station's principal coverage area and make its best reasonable efforts to ensure that coverage of the emergency is captioned as soon as possible: (2) stations maintain visible posting on television sets in the newsroom that remind employees to contact the station's captioning service during emergency events and include phone numbers for that service; (3) stations maintain a labeled speed dial button on telephones in the newsroom with direct connection to the station's captioning service; (4) stations provide special weather text graphics to viewers with hearing disabilities with shelter-at-home tips during coverage of tornado, severe thunderstorm, flash flooding or other weather emergencies; (5) stations adopt an emergency visual presentation policy requiring that all emergency information broadcast outside a regularly scheduled newscast be accompanied by captioning of emergency information as it is conveyed via the stations audio; (6) stations distribute at least every six months their emergency visual presentation policy to all employees and incorporate this policy into a station's annual news employee training orientation; (7) vendors in the telecommunications industry should recognize that their customer base includes people with disabilities and provide access to communications to these individuals; and (8) vendors should seek to assist shelter operators, national government organizations and voluntary agencies in stockpiling assistive technology devices to make them readily available during emergencies for those emergency shelter operations and restoration of the communities that are impacted.

<u>Pat Roberts</u>

Mr. Roberts is President of the Florida Association of Broadcasters and serves as the Florida Chairman of the Federal Communications Commission's State Emergency Communication Committee. Mr. Roberts noted that Hurricane Andrew taught the State of Florida that local and state government need to be better prepared to respond to disasters. Specifically, Andrew taught it that preparedness is the responsibility of both the public and the private sector. As a result, for the past 13 years, Florida has invested in training people, utilizing the latest technology and, in partnership with the Florida Association of Broadcasters, implementing public disaster preparedness education programs for the public.

In this regard, Mr. Roberts noted that broadcasters in Florida area considered first responders and are considered a priority on the priority fuel list behind health care and public safety These efforts have not been limited to hurricanes. Rather, Florida takes an all-hazardous approach to preparedness and response, and those include hurricanes, wild fires, floods, tornadoes, and potential terrorist attacks.

Mr. Roberts shared a number of lessons learned from Hurricane Katrina. First, America must have a more comprehensive and cohesive program among the state, Federal and local governments and our citizens to prepare for natural disasters and terrorists. This should include more training, more exercise, utilizing the latest training technology and a state-of-the-art emergency operations center. He also noted the importance of addressing special needs groups including people with no transportation and the elderly.

Mr. Roberts also talked about the role of broadcasters in disasters and responded to comments from Ms. Heppner and Ms. Styron regarding the need to comply with captioning requirements during disasters.

Dave Vincent

Mr. Vincent is the Station Manager of WLOX-TV. He gave his presentation on behalf of the Mississippi Association of Broadcasters. Mr. Vincent noted that Mississippi broadcasters did an outstanding job in response to Hurricane Katrina. He noted that, in several cases, Mississippi broadcasters put their lives on the line in order to make sure that the viewing and listening public had the necessary information to weather the storm. He discussed the experiences of WLOX during the storm and the impact of the storm on the station. He noted that one of the major problems stations experienced was access to fuel. He argued that broadcasters should be treated as first responders and that their fuel should not be confiscated. He also noted the benefits of amateur radio during the period of time when other communications systems failed.

John Archer

Mr. Archer is Vice President of Operations at XM Satellite Radio, Inc. XM Satellite is a provider of satellite radio services, offering 160 channels of audio service through the United States. He described how XM Satellite served as a critical source of information before, during and after the hurricane. He also described how satellite devices could serve as rapidly deployable, interoperable, communicable, off-the-shelf equipment that can provide a framework for connectivity among state, federal, and local authorities.

Sara Allen

Ms. Allen is President of Ciara Enterprises, Inc. She is also the Chief Consultant for KTAO-FM in Taos, New Mexico and a member of the Media Security & Reliability Council Toolkit Work Group Committee. Her presentation was on behalf of Prometheus Radio Project. Ms. Allen described the role of Low Power FM in providing information to the public during Hurricane Katrina. For example, she described how a group in Houston was able to obtain FCC authority to construct a Low Power FM station outside of the Astrodome in Houston, Texas. She also described the reconstruction of a Low Power FM station in Bay St. Louis following the hurricane.

Ms. Allen made the following recommendations: (1) the FCC should act on the recommendations made by Prometheus Radio Project and other Low Power FM community leaders in the Further Notice of Proposed Rulemaking in MM Docket No. 99-25; (2) Low Power

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FM stations should be assured primary status with respect to translator applications and existing translators; (3) full power stations should not be allowed to encroach upon Low Power FM stations; and (4) the FCC should grant licenses on the third adjacent frequencies and restate their support for an expanded Low Power FM service.

Marie Antoon

Ms. Antoon is the Executive Director of Mississippi Public Broadcasting, an eight-radio and eight-television station network covering the Gulf Coast up to Memphis. The network reaches into parts of Louisiana, Mobile and Northwest Florida. Ms. Antoon noted that fuel and towers were the network's weaknesses. She also noted that both the FCC and the Panel should look at the hardening of certain broadcast assets in certain areas such as the Gulf Coast. She discussed how their network was used to deploy a system to reach first responders. In addition, she discussed two projects in which MPB participates. One is called "Guard" which uses Education Broadcast Service frequencies to create a two-way system that can deliver addressable, encryptable video, data, voice and any digital content to fire and other first responders. She also mentioned the Digital Emergency Alert System project in conjunction with FEMA. This project uses laptops, cell phones, pagers, radio and televisions to send out emergency alerts from FEMA to the public.

Questions and Discussion

Noting the false reports issued by the media, Billy Pitts asked Mr. Roberts whether an emergency alert system or any national system should be at the community level. Mr. Roberts agreed, saying that you have to look at local government.

Marion Scott asked Ms. Heppner and Ms. Styron whether there is a one size fits all or a "good, better, best" that they would recommend to the Panel to help citizens with disabilities. Ms. Heppner responded that there is no one size fits all because people with hearing disabilities run the full spectrum. Thus, it is important to have redundancy. Ms. Styron agreed.

Tony Kent asked Mr. Vincent whether he was advocating that FEMA provide fuel to broadcasters. Mr. Vincent responded that they are only asking that fuel purchased by broadcasters not be confiscated.

REMARKS FROM COMMISSIONER DEBORAH TAYLOR TATE

Commissioner Tate summarized some of the comments made by speakers during Monday's segment. She noted that a major theme of the meeting has been "communication" whether it is one to one, one to a thousand or one to a million. She also noted that many of the speakers talked about the need for a national alert system and a regional planning commission. In addition, she noted that some speakers identified needs for training on unlicensed spectrum, uses and technology, pooling communications funding at all different levels, pecocells, and education and public relations regarding all of the topics that have been discussed. She also noted that many speakers talked about the need to recharter NRIC, a national IP network and mutual aid channels plus NTIA coordination, central points of contact and credentialing. Commissioner Tate indicated that she planned to take some of these issues back and looked forward to learning more.

FIFTH PANEL

Wesley D. Smith

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Mr. Smith is the Technical Director, Public and Enterprise Solution Business Unit, ARINC Wireless which provides technology that enables full communication interoperability among first responders. Mr. Smith described this technology – called – ARINC Wireless Interoperable Network Solutions (AWINS) – as based on the internet protocol standard and installed in both fixed implementations such as emergency operations centers and mobile versions such as A mobile command vehicle. Mr. Smith described ARINC's experience supporting the State of Maryland's post Katrina relief efforts. He also shared thoughts on lessons learned during this and other missions. These include: (1) the need for operability; (2) the need for interoperability; (3) the need to adopt policies that support an effective communications plan with contingencies in case of failures, rigorous and frequent training and drills that utilize disaster plans and technology, memoranda of understanding with other jurisdictions and potential outside assistance organizations and predefined and pre-authorized means of allowing support vendors to enter disaster zones to lend technical assistance in repairing damaged infrastructure; (4) development of open standards; and (5) funding. In summary, Mr. Smith argued that a standards-based approach provides the means to deliver on the promise of interoperability. He further stated that the ability to reach out using all communications means at hard is the first and most important requirement for successful disaster response.

Allan Finkelman

Mr. Finkelman represents CX2 Technologies which holds a number of FCC licenses in the 220-222 MHz frequency bands. CX2 Technologies manufactures patented digital data technology that maximizes the value of the 5 kHz very narrowband channels. Mr. Finkelman described the benefits of 220 MHz technologies.

Gregory A. Sarratt

Mr. Sarratt is Alabama Section Manager of ARRL, the National Association of Amateur Radio. He described the role amateur radio operators played in the recovery and restoration process following Hurricane Katrina. For example, he noted that during Hurricane Katrina, amateur radio provided volunteer operators to support many agencies such as Emergency Management, National Weather Service, Hurricane Watch and the American Red Cross. After Katrina, amateur or ham operators provided additional volunteer operators to support a larger number of agencies that requested their services. The ARRL coordinated hundreds of amateur radio operators who traveled to the devastated area and provided critical communications capabilities. Mr. Sarratt also described the benefits of amateur radio. For example, he noted that most amateurs possess a broad range of communications and technical skills outside of amateur radio, thus creating interoperability at both the systems and operation levels. He also noted that many amateurs are familiar with emergency management, public service and Red Cross communications, practices and equipment. In addition, Mr. Sarratt stated that amateurs provide technical skills in addition to communications. During the relief effort, technical knowledge of amateurs was thoroughly utilized. Amateurs repaired EMA radios, antennas, generators, forklifts, telephone systems, and other electronic items.

Mr. Sarratt made several recommendations such as: (1) the FCC and ARRL should work together to issue FCC credentials to the ARRL for amateur radio responders; (2) the FCC and the ARRL should be key partners in the amateur awareness program for multiple government agencies such as FEMA, state and local emergency management and the first responder community; and (3) the FCC and ARRL should continue working together on critical frequency spectrum protection and interface of ordinance issues.

Jerry Knoblach

Mr. Knoblach is Chairman and Chief Executive Officer of Space Data Corporation. Mr. Knoblach described Space Data's wireless solution that, he said, solves three primary problems that happen during disasters – availability of communications, range of communications and interoperability of communications. He stated that his company's innovative solution can provide communications to first responders when terrestrial networks cannot.

Mr. Knoblach explained that Space Data was founded nearly nine years ago with the idea to provide wireless communications by flying base stations high above the earth using free-floating weather balloons. This solution builds upon nearly a century of successful weather balloon launches by the National Weather Service, and today Space Data has a commercial network deployed in the 900 MHz narrowband PCS band covering 100 percent of Texas and Oklahoma and the surrounding areas that is compatible with the two-way pagers and telemetry devices that the paging representatives discussed during Monday's meeting. In addition, Space Data provides telemetry services to monitor critical infrastructure such as oil and gas wells and pipelines, and they are moving into cellular and broadband offerings with trials in North Dakota.

Mr. Knoblach described the device and its benefits. He urged the Panel to encourage the FCC to support the advancement and use of technology such as Space Data's before the next emergency occurs. Specifically, he suggested that the FCC have an automatic waiver process for public safety spectrum that is triggered by a Presidential declaration for public safety spectrum so a solution like Space Data's could be rapidly deployed in the event of an emergency. He also suggested that the Commission should press the Department of Homeland Security to examine balloon-borne solutions and have the necessary inventory and emergency service plans in place for federal agencies in advance of the next hurricane season.

Brent Struthers

Mr. Struthers is the Senior Director for State Regulatory Affairs at NeuStar, Inc. NeuStar operates the National Number Portability database. Mr. Struthers described number portability and how it relates to disaster recovery. He also described how NeuStar assisted companies such as BellSouth with number portability during and after the hurricane.

Mac Dearman

Mr. Dearman represents Maximum Access, LLC. Mr. Dearman described his perspectives on the impact of Hurricane Katrina and other hurricanes that hit last season. He also described his role in the recovery and relief process following Hurricane Katrina.

Questions and Discussion

Mr. Davis asked Mr. Knoblach how long Space Data's balloon technology stays aloft once launched and on what frequency they operate. Mr. Knoblach responded that their commercial network is deployed at 900 MHz narrowband PCS. He noted that they can work on any band. He stated that the balloons stay aloft 24 hours due to limited battery life. They hope to extend that to three days with the use of solar panels and fuel cells.

INFORMAL WORKING GROUP PROGRESS REPORTS

Informal Working Group 1 – Infrastructure Resiliency

Marion Scott, Chair of Informal Working Group 1 noted that IWG-1 has been meeting bi-weekly since the January meeting. She indicated that the group started out by defining the various components of the communications networks and gathering information about those components. The group's next task is to consolidate all that they have learned.

Informal Working Group 2 – Recovery Coordination and Process

Steve Davis, Chair of Informal Working Group 2 noted that his group is looking at issues such as emergency responder designation, credentialing, access to facilities, prepositioning of personnel and materials that might be required before a disaster and the establishment of a state emergency coordinating group that would coordinate with state and local officials in such a way that there would be a single point of contact to all these diverse interests.

Informal Working Group 3 – Emergency Communications

Steve Delahousey, Chair of Informal Working Group 3 identified some of the issues the group is working on such as use of temporary and portable base stations for public safety during a disaster, use of nontraditional emergency communications such as satellite phones, the role of nontraditional technologies and communications interoperability. He also noted that the group is working on ways to make EAS more effective and encouraging the more effective implementation of the National Response Plan, particularly ESF2 which deals with emergency communications.
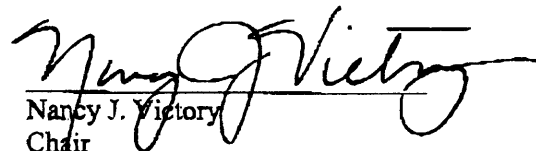
OTHER BUSINESS

Ms. Victory noted that the next full meeting would probably be the end of April.

ADJOURNMENT

Ms. Victory adjourned the meeting as 12:50 p.m.

CERTIFICATION

This is to certify to the accuracy of these minutes of the March 6-7, 2006 Meeting of the FCC's Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks.

Nancy J. Victory
Chair
FCC's Independent Panel Reviewing
The Impact of Hurricane Katrina on
Communications Networks

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APPENDIX 1

OTHERS PRESENT AT THE MEETING

Jeff Allen, Core Coordinator, Community Wireless Emergency Response Initiative
Sara Allen, Ciara Enterprises (representing Prometheus Radio Project)
Marie Antoon, Mississippi Public Broadcasting
John Archer, Vice President, Operations, XM Satellite Radio, inc.
Sandy Bogucki, M.D., U.S. Department of Health & Human Services
Guy W. Clinch, Director of Programs and Solutions, Avaya, Inc.
Mac Dearman, Maximum Access, LLC
Bruce Deer, Preseident, American Association of Paging Carriers
Allan Finkelman, Vice President, Marketing & Business Development, CX2 Technologies
Woody Glover, Director, St. Tammany Parish Emergency Communications District
Jenny Hansen, Project Coordinator, Next Generation 9-1-1, U.S. Department of Transportation
Cheryl Heppner, Vice Chair, Deaf and Hard of Hearing Consumer Advocacy Network
Vincent D. Kelly, President and Chief Executive Officer, USA Mobility
Jerry Knoblach, Chairman and Chief Executive Officer, Space Data Corporation
Harlin McEwen, Chairman, Communications & Technology Committee, International
        Association of Chiefs of Police
Hu Meena, President, Cellular South
Benjamin Mobias, Tropos Networks
Jay Monroe, Chairman and Chief Executive Officer, Globalstar, LLC
Wanda Montano, Vice President, Regulatory and Industry Affairs, US LEC
Keith Parker, Director, Emergency Medical Service, State of Mississippi
John Pearce, Executive Director, Homeland Security, Harris Corporation
The Honorable Chip Pickering, U.S. House of Representatives
Greig Prejean, Operations Manager, Xspedius Communications
Pat Roberts, President, Florida Association of Broadcasters
Gregory Sarrant, Alabama Radio Operator, ARRL
Juliette M. Saussy, MD, Director, Emergency Medical Service of City of New Orleans,
        LA
George Sholl, Director, Jackson County Emergency Communications District
Wesley D. Smith, ARINC Wireless
Brent Struthers, Senior Director, State Regulatory Affairs, NeuStar, Inc.
Hilary Styron, Director, Emergency Preparedness Initiative, National Organization on Disability
Dominic Tusa, Tusa Consulting
John Vaughan, Vice President, Wireless Systems Business Unit, M/A-Com
Dave Vincent, Station Manager, WLOX-TV (representing Mississippi Association of
        Broadcasters)

APPENDIX 2

DOCUMENTS DISTRIBUTED TO THE PANEL AT THE MEETING

Agenda
Guest Speaker Biographies

FIRST PANEL

Hurricane Katrina – Lessons Learned For Emergency Communications, Chief Harlin R.
McEwen, Chairman, Communications & Technology Committee, International
Association of Chiefs of Police
Jackson County, Mississippi – Hurricane Katrina Timetable
Impact of Hurricane Katrina on the 9-1-1 System in St. Tammany Parish, LA and Mitigation of
Future Events
St. Tammany Parish, Louisiana, The Impact of Hurricane Katrina on the 9-1-1 System and
Preparing for the Future
U.S. Department of Transportation, Intelligent Transportation Systems, Next Generation 9-1-1
Initiative
U.S. Department of Transportation, Intelligent Transportation Systems, Next Generation 9-1-1
Initiative, Historical Overview
U.S. Department of Transportation, Intelligent Transportation Systems, Next Generation 9-1-1
Initiative: Concept of Operations

SECOND PANEL

Written Testimony of Vincent D. Kelly, President and Chief Executive officer, USA Mobility
Statement of James Monroe, III, Chief Executive Officer, Globalstar, LLC
Comments of Xspedius Communications, LLC to the Independent Hurricane Katrina Panel
March 6, 2006

THIRD PANEL

Tropos Network Diagram
Guy Clinch, Biography and Written Testimony
Comments of Jeff Allen, Community Wireless Emergency Response Initiative
Radio Response's Activities Following Hurricane Katrina, Jeff R. Allen, March 6, 2006
Harris Corporation Presentation to the Independent Panel Reviewing the Impact of Hurricane
Katrina on Communications Networks
Presentation to the Meeting of the Independent Panel Reviewing the Impact of Hurricane Katrina
on Communications Networks, Dr. John Vaughan, Vice President, Tyco Electronics:
M/A-Com, March 6, 2006
M/A-Com Executive Presents Solution for Disaster Communications to FCC Panel
New Orleans Public Safety Communications: What Went Wrong, Dominic Tusa

FOURTH PANEL

Remarks by Cheryl Heppner, Deaf and Hard of Hearing Consumer Advocacy Group
Written Testimony and Hand-outs of Ms. Hilary Styron, Director, National Organization on
        Disability, Emergency Preparedness Initiative
Remarks and Hand-outs of C. Patrick Roberts, President of Florida Association of Broadcasters
        March 7, 2006
Testimony Before FCC Regional Hearing, March 6, 2006, Dave Vincent/WLOX, Station
        Manager, Jackson, Mississippi
Statement of John Archer, Vice President, Operations, XM Satellite Radio, Inc.
Presentation of Sara T. Allen, Bradenton, Florida, Prometheus Radio Project Volunteer
Community Radio Response to Katrina, Testimony Packet
Mississippi Public Broadcasting Packet

FIFTH PANEL

Presentation of Wesley D. Smith, Technical Director, ARINC and associated hand-outs
The CX2 Technologies "Integrated Mode" for a National Emergency Response System
Hurricane Katrina Amateur Radio Emergency Communications Relief Efforts and Hand-outs
Brent Struthers, NeuStar Hand-outs