

## Hurricane Katrina Restoration Summary

We wish to thank Chairman Martin, the Commission and Nancy Victory for leading this effort. Cingular appreciates the opportunity to work with this panel and contribute to solutions which will serve to provide a faster and more effective telecommunications response to future Katrina like events.

Cingular, like all members of this panel, is experienced in operating through natural, and some manmade, disasters. Prior to Katrina our disaster recovery plans were documented, restoration procedures were rehearsed, and provisions laid aside.

Past experience with hurricanes had taught us to expect 3 points of probable failures; loss of commercial power, loss of telecommunications connections to our cell sites, and damage to the towers themselves - usually the antenna arrays.

The solutions are; generators to power the equipment until commercial power is restored; fuel to power the generators; coordination with local exchange carriers to restore the high speed telecommunications links to the cell sites; microwave equipment where the local wireline connections cannot be restored; portable cell sites to replace the few sites typically damaged during the storm; an army of technicians to deploy the above mentioned assets; and the logistical support to keep the technicians fed, housed, and keep the generators, fuel, and equipment coming.

As long as ample volumes of generators, fuel, equipment, and technicians are made available, restoration of the network is in full swing within 24 hours after the event, critical services restored within 48 hours, and service is restored to most areas within 72 hours. Within a week of the event, most portable generators and cell sites are released from the event and returned to their storage depot.

48 hours before Katrina made landfall we had 500 portable generators, 30 portable cell sites, 260,000 gallons of fuel, and 1000 communications technicians either at, or in route to, our prestaging areas, close enough to the predicted impact area to be quick to deploy, but far enough away to not be part of the casualties. We had opened up reciprocal local roaming with TMobile to allow all GSM subscribers every opportunity to complete their calls.

By the morning after Katrina landed, it was clear Katrina was an unusual event, even for a hurricane. Damage was both intense and widespread. The Hurricane inflicted substantial damage to our wireless service infrastructure in Mobile Alabama, Jackson and Hattiesburg Mississippi, and Lafayette and Baton Rouge Louisiana and lighter damage in Florida and Birmingham Alabama. In these areas service was never lost, but coverage was significantly impaired. Damage to the New Orleans, Louisiana and the Gulfport-Biloxi, Mississippi area was more extensive and large portions of these areas were completely off the air. Where the impact from a normal hurricane was several hundred cells sites off the air for 24 to 48 hours, at the worst of Katrina we had over 1000 sites off the air, and the restoration was measured in weeks, not days. The most serious damage, to our own network and to

the commercial power and local exchange networks we depended on, was from the flooding.

One switch in one of our 2 switching centers in New Orleans was flooded out and the others were isolated, losing all high speed connections to both the local exchange carrier's tandem switches as well as our subtending cell sites. It is worth noting that we had deployed fault resistant transport rings from multiple local exchange providers to our switching centers. All transport facilities to both switching centers had failed. The loss of the LECs switching centers meant that our New Orleans subscribers couldn't receive calls, even if they were outside of the damaged areas, and there was no access to their voicemail service. The network in Biloxi was isolated from its host switching center in Mobile, Alabama.

By the end of the week following Katrina, service had been fully restored to Mobile, Jackson, Hattiesburg, Lafayette, Baton Rouge and surrounding areas, as well as all of Florida, although a few pockets of weakened or reduced coverage remained. Service had been partially restored to the Biloxi-Gulfport area and some very limited service was available in parts of New Orleans.

2 weeks after Katrina hit, service had been predominantly restored to the Biloxi-Gulfport area although there was some congestion generated by the higher than normal demand on the system. The local LEC tandems were back in service restoring the ability of calls to be completed to our customers who had evacuated the area. Service in the most damaged parts of New Orleans was very restricted. We had provided in excess of 1000 free cell phones and 100 satellite phones to first responder teams and suspended billing of our wireless services in the most impacted areas for up to 30 days.

We still had hundreds of generators running to provide power to out equipment a month afterwards. As of today 24 cell sites are still running on generators.

What worked well:

We never ran out of generators, fuel, equipment or technicians. While there was a struggle to keep the materials coming into the impacted areas, we never ran out. Coordination and cooperation with the emergency response organizations and other telecommunications companies was good. As an example, BellSouth set up a Network Operations Center specifically to deal with the restoration needs of the wireless carriers. What could be done to restore service and support first responders needs, was done. And our suppliers, of equipment and human resources, stepped up to divert needed men and materials to the restoration area. Wireless Priority Access Service worked as it was designed to give first responders and emergency services first priority to the wireless capacity that was available. The FCC responded expeditiously to allow temporary operating authority for use of microwave spectrum for restoration of services.

What didn't work well;

The substantial damage to the commercial power and the landline telecommunications grids in the core areas of New Orleans. The long term loss of commercial power meant that we needed a massive and long

term effort to deploy generators and continuously resupply fuel, adding to the challenge of moving materials in and out of the impacted areas. While we could deal with the loss of telecommunications links to individual cell sites, the loss of the links to our switching centers and the loss of the LEC tandems had fewer solutions.

The lack of access to impacted areas. There were areas of the Louisiana and Mississippi coast where we could not access our equipment sites for many days. While the security concerns which dictated these delays were valid, they slowed our ability to assess the damage situation and to provide service restoration.

Lack of communications services. We were impacted like everyone else with difficulties maintaining communications to those dispatched to work in the impacted areas. The satellite phones we deployed to our technicians provided a partial solution, but even these were severely impacted by congestion resulting from the high demand placed on the system.

As a result of the lessons we learned in Katrina, we are implementing some significant changes to our disaster response procedures and resources. We believe these changes will improve the speed and effectiveness with which we can respond to large scale disaster incidents such as Katrina presented. However, our dependencies on commercial power, the landline telecommunications links and quick access to the impacted areas remains.