

After Action Report
HURRICANE IKE
TXWARN System
September 7- 21, 2008

As one of the most devastating hurricanes in Texas history, Hurricane Ike presented the biggest challenge to TXWARN since its inception. TXWARN began tracking IKE and providing notices to members on Sunday September 7, 2008. As it approached the Texas coast, Ike's predicted landfall shifted from the Rio Grande to Galveston Bay. When it arrived overnight on Friday September 12-13, 2008, the force of its winds was not as severe as had been predicted, but its mammoth size brought with it a storm surge equal to a much more powerful storm, striking the most one of the most populous areas of Texas causing severe damage to Galveston, Houston, and the Golden Triangle, and its impact was felt on the eastern third of the state.

As Ike wandered across the Gulf of Mexico, TXWARN prepared its membership through frequent e-mails and IRIS communications. Additionally, non-members were notified to make preparations via the IRIS system. Additionally, all utilities in the state were requested through TXWARN and IRIS to identify available resources.

TXWARN also distributed an e-mail to county and city emergency management coordinators, reminding them of TXWARN's availability. This had a positive outcome, and several post-landfall calls for assistance were directly traceable to county EOC referrals.

TXWARN participated in a conference call with TCEQ leadership to delineate procedures for damage evaluation following landfall. TCEQ advised that it would conduct post-landfall calls to utilities. Though TXWARN had readied the IRIS system to initiate these calls with call back capability, TXWARN agreed to TCEQ wishes. The IRIS system allows calls to land lines, cell phones and text messages to cell phones. TXWARN had recently requested all utilities to provide us with their after hours (cell phone) numbers to update the IRIS System.

TXWARN communicated with the Public Works Response Team (PWRT), based in the State Operations Center to prepare coordination procedures prior to landfall. The PWRT indicated they would receive input from TXWARN regarding utility needs as well as forward requests to TXWARN to assist in resource location and coordination. The PWRT also noted it would require a Form 213 requesting assistance from utilities that needed assistance.

Along with other emergency response resources across Texas, TXWARN participated regularly in calls from the SOC. After landfall over Galveston Bay, the SOC calls were somewhat diluted by individual complaints from lawmakers or lawmakers' staff, but were still useful.

TXWARN participated in calls with other WARN systems across the nation and received several offers of support and materiel from sister WARN programs. After landfall, TXWARN made two separate offers to the PWRT to bring in resources from FLWARN and GAWARN (Georgia). Some of the FLWARN resources were in Louisiana responding to Hurricane IKE and were readily available. These requests would have required Emergency Management Assistance Compact (EMAC) requests by the State EOC and coordination with other states to complete. The PWRT determined these resources were not needed.

After landfall and initial evaluation, it became clear that, as with Dolly, in the re-entry and early recovery phases of the response, the main issue for utilities was electrical power. Many utilities requested generators to operate lift stations. TXWARN was able to broadcast these requests and, in some cases, identify utilities outside the affected area that could provide assistance.

The City of Beaumont contacted TXWARN at 7:15a on Saturday September 6, 2008, the morning after landfall. Beaumont was requesting numerous generators including one large unit for their wastewater operation. Phone service was out, but cell phones still worked sporadically. Text messaging did work and was used during the entire event when possible. Resources were located and onsite in Beaumont later that day. TXWARN did follow up calls and outreach for Beaumont and numerous other utilities to continually assess their status.

A number of utilities responded to requests for resources including the City of McAllen which sent a team of multi-disciplined staff including utility staff to Galveston. This was coordinated through the PWRT. The San Antonio Water System provided numerous resources including manpower and equipment. Austin provided four generators to two different utilities. Arlington and Waco also offered generators upon request. TXWARN also assisted the TRA Sabine River Labs early in the event. One utility in Ellis County called offering to deliver a 300-gallon tank of diesel fuel to the affected area. Another utility from Travis County provided a large generator for a treatment plant in Orange County. These are a small number of response examples that occurred during the response to IKE.

On Sunday September 7, the TCEQ inquired if TXWARN was able to provide support at the State EOC to assist the PWRT help coordinate utility requests. Mr. Charles Maddox agreed to assist and was able to provide support on Sunday, September 8th. However, Mr. Maddox was committed to assisting with shelter operations in the City of Austin and was unable to provide full support over multiple days. We were unable to provide additional support.

Mr. Maddox has provided some observations that will be useful in better coordination in the future. Some of the important observations are: 1. Though water and wastewater utilities are included in Emergency Support Function (ESF) #3, Public Works, and are considered critical infrastructure, they are not as fully prioritized as many would prefer, 2. The PWRT team needs additional assistance, 3. TXWARN was heavily relied upon, but coordination with the State EOC and COE was delayed due to lack of continuous information, situational awareness, and late in the day reporting. We address these issues later in this report.

As the event moved into the third and fourth days, TXWARN also assisted utilities in locating fuel for continuation of generator operations.

As resources were fully committed or we could not locate additional resources from other utilities, all TXWARN could do was provide a list of vendors who would rent generators. This process actually began early on Saturday September 6 and continued during the entire event.

In the third and fourth day, additional requests came forward for more generators for sewage operations, particularly in Galveston and Houston. TXWARN coordinated requests for pumps and hoses for sewage operations connecting numerous requests with willing suppliers and utilities. As TXWARN provided information to the City of Houston for 300 plus generators, we forwarded the request to the PWRT. We also completed the 213 form for Houston and sent it to the State EOC to avoid delays of processing their request. TXWARN processed a number of 213 forms to avoid resource management delays.

The TCEQ began damage assessment calls on Monday September 8, 2008, utilizing a large number of TCEQ staff. It is our understanding that due to an apparent overload of resource requests sent to the PWRT after the calls were initiated, these calls were suspended on Monday afternoon and not restarted until the afternoon on Tuesday September 9, 2008. Reports from the TCEQ summarizing the damage assessment calls indicated a number of no answer calls. Our speculation is some of these no answer call occurred because land lines were down. We don't know if the TCEQ database includes cell phone numbers.

During the response period, TXWARN would continuously receive requests for assistance. Each morning, TXWARN would conduct an internal conference call immediately following the State EOC conference call. During this TXWARN call, requests would be entered, utilities contacted and resources managed and connected if available. Follow up calls to previous requests were also performed during this period. Reports were supplied to the TCEQ and the State EOC at the end of each day. Examples of these reports are attached.

The value of summarizing events is to provide information and observations that will improve the response efforts in the future. Our goal is to move the water wastewater response effort fully into TXWARN and allow TXWARN staff to coordinate back to the TCEQ and the SOC with progress reports. This will eliminate the bottle necks at the State EOC. This will require a more robust system to assume that responsibility and greater participation by utilities, the COE, the TCEQ and the State.

Lessons learned:

1) TXWARN's procedures improved dramatically from Hurricane Dolly earlier in the summer. Senior administrators, including TXWARN Chair Richard Talley, conducted several hours-long calls analyzing requests and taking action to meet them. More improvement is needed: More trained utility personnel should be involved in the process.

TXWARN had prepared to have a bigger team in place to assist in call management, but that process was put on hold.

Consideration should be made to use IRIS system for initial calls to impacted utilities. This system can effectively perform the outreach function to multiple phones in a short time (4,000 calls in less than 40 minutes) and track responses. It can also continuously call over a managed period of time until the call is answered by a person.

It is imperative that TCEQ require cell phone numbers for all utilities to be updated every six months.

TXWARN is developing a team of "A" operators and trained emergency response personnel to be ready to assist taking calls when needed. The TXWARN/IRIS calling system can also include TCEQ staff as needed to participate in the process. Some programming will be needed to allow utilities who did receive a call to hit one number to 'call back' to receive a live person. Utilities need to identify key people for this role. We intend to discuss training hour opportunities for these volunteers.

2) Prior to the arrival of an event of Ike's magnitude, TXWARN needs to identify generator resources that can quickly be shifted into the affected area. The State had already contracted with a number of generator suppliers, but this list was not made available until after landfall. Some of these suppliers were able to move generators into the area quickly, but others were reluctant, were sales only or were sending mixed signals to utilities about availability of rental units. There were some questions about actual costs as some suppliers would not quote prices. After hours numbers should be listed and lists should be available in advance.

- TCEQ should consider a more robust enforcement of requirements for standby power.
- This state generator contact list needs review and issues need to be resolved.
- It is also important to know what resources the COE has available and how to access those resources in a more coordinated fashion.
- Prior to landfall, most of the communication was with potentially impacted utilities; Though TXWARN made requests statewide for resources in advance of the storm, a more extensive effort needs to be made to contact utilities that will, in all probability, be out of harm's way so that TXWARN can marshal resources for post-landfall re-entry.
- Utilities need to identify available resources and teams according the AWWA Resource typing manual to stand ready. As the PWRT may request cities to provide response teams for other purposes, utilities should hold back their staff for direct utility to utility coordination. We should not dilute the base of specialized utility experts for other purposes.

3) TXWARN was able to quickly modify its web-based software so that personal digital assistants, such as Blackberries could be distributed. While this improvement was not fully used, it did show that software upgrades could be installed quickly.

In its existing system, during Ike, TXWARN's software was tested to its limit, and some deficiencies in flow were noted. More robust reporting is required. Additionally, better management of event filing, etc needs to be completed.

4) Once TXWARN's software system is tweaked, it should become the center of operations for not only TXWARN, but for PWRT and for TCEQ. All assessments that require assistance should be input

through TXWARN. As it was, the PWRT circulated an assessment once-a-day in a format that was not easily portable to different mail programs or browsers. One of the three senior administrators of TXWARN could open the file. He had to print it out and fax it to the other two.

- It would be much more efficient to have PWRT input its data in the TXWARN system, so that more resources could be brought to bear faster.
- Similarly, TXWARN needs a knowledgeable utility representative at the PWRT's side in the State Operations Center. That way, TXWARN can make sure that water and wastewater system responses are not put on the back burner. This will need to be a team able to staff multiple hours, multiple days.
- While important, the delay in moving resources for lack of a 213 form can present problems particularly when the forms and all requests are in queue at the State EOC. This process needs to be streamlined by using a trusted sources model such as TXWARN and staff to manage the paperwork.

5) There must be some discussion to advance the use of EMAC requests before events overwhelm the value of moving resources. The requests should be considered automatic so resources can be identified, moved and staged in advance of the event when possible. Delays are unnecessary.

This effort is underway at the national AWWA level.

6) Water and Wastewater utilities are identified as critical infrastructure but located in ESF #3 with all public works. It is clear that this does not function well, particularly when millions of people are 'evacuated in place.'

The intent of TXWARN and the other WARN programs is to rapidly restore water and wastewater utility services within hours, not days, of an event. Public Safety, Public Health, fire fighting and medical services depend on this restoration.

TXWARN and AWWA are working on the national level to move water and wastewater recovery to a new Emergency Support Function (ESF) that will increase the priority of utility response. We believe this could be accomplished at the State level without this designation. Discussion should begin.

Conclusion

Though generally, we were very pleased with TXWARN's performance during Hurricane IKE, it did illustrate a number of areas that need improvement.

Our coordination with the PWRT was successful and everyone was working towards the same goal. From all observations, they performed well in this very intensive response event. We believe the PWRT is tasked with too many areas of responsibility so we want to work with them to reduce their need to manage water and wastewater utility response. It became clear that the PWRT was depending heavily on TXWARN. For that to be successful we need better information, TXWARN teams in the EOC, and a better coordination with the COE and others for fully manage the response process. The paperwork (213 forms) issue must be addressed.

We believe the damage assessment process can be better managed and are prepared to work with the TCEQ towards that end.

TXWARN needs a strong commitment from utilities to support the program. We will work on that effort.

Howe/ Avery/ Talley/ Maddox
October 7, 2008