



City of Harrisonburg, Virginia

FIRE DEPARTMENT

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EMERGENCY COMMUNICATIONS CENTER POWER OUTAGE

AUGUST 5, 2014

At approximately 5:52 p.m. on August 5, 2014, a tree limb fell across a power line on Crawford Avenue causing a power outage in the southeast part of the City. This power outage also affected the Emergency Communications Center (ECC) located in the Public Safety Building (PSB). The PSB has an 800 kw generator that is used to provide emergency power to the building anytime the power supply is interrupted. However, when this event occurred, the generator failed to start. This generator is covered by a 24 hour a day, seven days a week, 365 days a year, service contract. Scheduled service was performed on the generator just two weeks prior to August 5. The generator is started and allowed to run for about 45 minutes each week, and is run under a load once a month. When the generator failed to start, a service technician was called and arrived at the ECC approximately 30 minutes later. After troubleshooting the problem for approximately 30 minutes, the technician got the generator to start and run properly. This was within minutes of the time that regular power was returned to the building. The technician returned the next day to recheck the generator to make sure everything was working properly. The technician replaced the voltage regulator on the generator, but is unable to determine the exact reason that the generator failed to start. I have attached a copy of the service report from the service technician to this report.

On August 27, an After Action Review (AAR) of this incident was conducted at the Fire Chief's Office. Those in attendance included Fire Chief Larry Shifflett, Deputy Chief's Bennett and Brady, Assistant City Manager Lewis, ECC Director Junkins, ECC Supervisors Dee Dee Sencindiver and Sam Sencindiver, HEC Manager Brian O'Dell, Rockingham County Fire Chief Holloway, and PSB building maintenance technician Nelson Dean.

After a discussion of the incident and the actions taken during the power outage, our focus was directed towards how to lessen the impacts on the critical systems in the ECC should this type of situation reoccur. This discussion was driven by the fact that the generator is a mechanical device, and any mechanical device, regardless of how good a maintenance program is, has the potential to fail.

The critical systems identified, and the discussions related to the same were as follows:

- **Lighting in the ECC** – Of all the critical systems in the ECC the lighting system is the easiest to address. The incident occurred in the evening hours and continued till dusk. To address the lighting issue, Tower One was brought to the ECC and provided power from its 20kw generator up the aerial, and in through the fifth floor windows. Tripod lights were set in the ECC as well as in the meeting room of the ECC to provide lights so the dispatchers could perform their duties. In the future, this problem will be solved with the ECC purchasing rechargeable 1000 watt portable lights that will be kept in the ECC for this use.

Another lighting problem that was identified was that there was no emergency lighting in the stairwells. With the elevators being incapacitated due to the power outage all entry to the ECC had to be through the stairways on each end of the building. To address this issue, emergency lights will be placed at each landing in both stairways of the PSB in the very near future.

- **HVAC Equipment** – When the power went off, obviously the HVAC equipment ceased to function. The only recourse in this situation was to open the windows to provide ventilation in the ECC. The windows in the PSB take a special key to unlock the windows so they can be opened. The PSB maintenance technician brought the needed tool to the ECC and opened the window. At the time of the incident, the maintenance technician and the Fire Chief were the only ones who knew how the windows operated, and the only window keys were kept by the maintenance technician. Since the incident, multiple window keys have been purchased. ECC personnel have been provided keys, and have been instructed in their use.

Another issue concerning the HVAC equipment that was discussed was whether having all of the HVAC equipment start at the same time would have a negative impact on the generator over a period of time. The generator is certainly sized to handle the load generated by this building. However, to stagger the start up times of the HVAC equipment from a dead stop, such as when the power goes off, should lessen the initial impact of the generator when it tries to start.

ABM is currently in the process of replacing the HVAC equipment in the PSB. They have agreed to stagger the start up times of the HVAC equipment as it is installed.

- **Electricity (HEC)** – As soon as power went off, the ECC supervisor notified HEC that the ECC was without power. However, the call was made to the regular after hours number for HEC. Because the answering service was already receiving calls of a power outage, the answering service did not pay particular attention to the call, thinking it was just another customer reporting an outage. When Deputy Chief Bennett got to the ECC, he called the HEC on-call cell phone number and talked to the HEC service man who was working the power outage.

The critical nature of the situation was relayed to the HEC service man, and during the incident numerous calls were made between Deputy Chief Bennett and the HEC service man.

After discussing the HEC call reporting process, HEC Director Brian O'Dell established a calling process that whenever the ECC is without power, and the standby generator is not working, that he will be called and notified directly of the situation. If he is not available, the call will be made to one of his assistants.

The issue of the ECC having an alternate electric feed, so that if the primary feed went down, a secondary feed would take over, was discussed. Mr. O'Dell stated that while it was not possible to have two feeds coming in to the ECC, in the event of a total failure of the electric feed and the generator, it is possible to re-route electricity into the ECC. This process would take approximately an hour, and would be part of his decision making process when he is notified that the ECC is down.

Also, to insure that there are no issues with the generator starting during a power failure, we have scheduled HEC and the generator maintenance provider to conduct a test on Thursday, September 4. At this time, HEC will shut down power to the PSB causing the generator to start and provide power to the building. This test will be conducted annually.

- **Uninterrupted Power Supply (UPS)** – Most of the critical systems (phones, computers, dispatch consoles etc.) in the ECC are supplied power through the uninterrupted power supply. The main power supply actually provides power to the UPS, which then provides power to the various systems. The UPS is actually a system of batteries with a life span of about 60 minutes. When all electricity is off at the ECC, with the exception of lighting, all critical systems which are supplied power through the UPS will continue to operate for approximately 60 minutes. It was at the end of this 60 minute time period that the 911 phones went dead. The 911 phones were down for approximately 10 minutes, which is the time it took for ECC personnel to transfer the 911 lines so they could be answered on a seven digit phone number. Also during this time, ECC personnel were contacting the news media with instructions for the public to stop a police officer, or go to the nearest fire station if they had an emergency to report.

The discussion concerning the UPS had to do with whether or not more batteries could be added to the UPS to increase the amount of time the UPS would function during a power outage. ECC Director Junkins is investigating whether this is a possibility.

While there were other items discussed during the AAR such as minor procedural changes to inside lines, as well as to the mobile command post, using the City's PIO to take some load off ECC personnel, etc., the items listed above are the

items we feel are the most significant to lessen the impact on the ECC and the public should this situation happen again.

As far as the generator is concerned, I feel we are doing everything we can to insure its proper operation during a power failure. As stated before, the generator is a mechanical device, and as such, has the potential to fail. I feel that the best we can do is to make sure that the generator is properly maintained and tested, and to make adequate provisions to insure system operation should it fail.