

Before the
Federal Communications Commission
Washington, D.C. 20554
In the Matters of

Amendment of Part 11 of the Commission's)
Rules Regarding the Emergency Alert System) PS Docket No. 15-94
Wireless Emergency Alerts) PS Docket No. 15-91

Comments of Richard A. Rudman

PREFACE

The destiny for effective, timely and reliable over-the-air emergency public warnings hangs in the balance. While we have a still growing number of other means to warn a public at risk with timely protective directions and actions to save lives and property, the Commission must always preserve, protect and defend the life safety value of over the air broadcast warnings. While all technologies are subject to failure, the Commission must keep in mind a valuable lesson from Hurricane Sandy: Some flood victims were reduced to listening to warnings and ongoing emergency public information using the only means that still worked – their automobile radios. Loss of Internet, cell phone, cable and utility power services, emergencies in and of themselves, compound uncertainty and confusion that exists when the flow of life saving information is interrupted.

The Commission must preserve the on air warning capability at all costs. Guidance from experts in the origination, coordination, and dissemination of local, regional and state warnings over the air in response to this Notice of Proposed Rulemaking will be important to the goal of preserving this important warning resource.

My Comments on this matter are my own. Some of what I am offering will reinforce Comments of my colleagues in the Broadcast Warning Working Group (BWWG), the Washington State SECC, the EAS equipment vendor community and emergency managers who are each in their own way critical subject experts on the “ground truths” of this matter. Other points I will make will attempt to take this discussion to a new level. I believe that local and state EAS (and all emergency public warnings and follow-on details) being handled on a voluntary basis have to evolve to become integral voluntary components of emergency management in the USA.¹

¹ A possible starting point model for this transition exists in the American Radio Relay League (ARRL) structure that set up a mechanism for a voluntary cadre of Amateur Radio operators so they can work closely with sworn public safety officials to supply Amateur communications links for civic events, sporting events and declared emergencies. [<http://www.arrl.org/public-service>]

SECTION 2

The Commission should adopt a philosophy that all local and state emergency warnings that flow out on all viable warning systems must be coordinated at the local and state levels under the well-established protocols of the Incident Command System (ICS) and set in stone with new training modules that can be built into the nation's National Incident Management System (NIMS).² A core goal of ICS is to achieve command and control of situations during an emergency. Usually use of the term 'command and control' applies to how emergency responders are managed under ICS. However, in any emergency, getting protective actions and other information to the public can help the professionals bring the emergency to a better outcome in a shorter period of time. To quote the father of the Common Alerting Protocol, Arthur Botterell, ***“Public warning is as close to command-and-control as you can get with the public. If you want them [the public] to do something, or not do something, this is how you accomplish that.”***³

The Commission has grappled with the “Catch 22” of local and state EAS issues vs. mandatory Presidential warnings long before the EAS was launched on January 1, 1997. This decades long process leaves us with the following reality: The Commission cannot ever impose mandatory requirements on those who volunteer to write and maintain EAS plans that include the all-important monitoring assignments.

The result of this “Catch 22” has been a patchwork of legacy local and state policies dating back to the Cold War. These policies all hinge on voluntary support in the local and state committees, and voluntary relay for local and state EAS events.

The Commission should not compound the present situation by adding to or formulating new rules with compliance implications in Part 11 to deal with the responsibilities and structure of EAS steering committees. To state this as a “positive”, the Commission should craft language in 47 CFR Part 11 that clarifies that these local and state entities need to work within the framework of local and state emergency management agencies and protocols. More carrot, less stick.

SECC's and LECC's should function within the framework of local and state emergency management. Period. We have seen what great things can happen when this occurred in the State of Washington, the example I point to constantly as a cooperative and productive public/private model the other 49 states should

² <https://www.fema.gov/training-0>

³ Direct quote by express permission of Arthur Botterell, now with the California Office of Emergency Services (CalOES). Without Mr. Botterell's tireless and often solitary efforts, the Common Alerting Protocol (CAP) would simply not exist and we (and the world) would not have the open, non-proprietary internationally vetted standard for digital warning origination today that we call the CAP.

all emulate. Other states and local emergency management agencies have embraced the value of working with the EAS Participant Community with impressive results, but the Washington State model has been working effectively since the EAS was launched in 1997, and even before that as their EAS State Plan was being developed.

In some states where the Washington State model of public/private close cooperation has not been implemented and strongly supported by professional emergency managers, I can point to loss of many of the hearts and minds of the volunteers who are needed to preserve the EAS on-air warning resource; loss of commitment from licensees who heretofore willingly volunteered their time, effort and employees in the name of public service, and “disconnects” by several key independent EAS subject experts who still care enough about improving the overall emergency public warning effort in the United States but have been burnt out by a process that has taken far too long to perfect.

SECTION 3

The Cable Override issue, long ignored, must now be faced head on. Here is an area where the Commission must remember that it does have the right to require those it regulates to meet common sense standards and requirements. The Commission should map out a course to eventually eliminate the blanket override of television broadcasters. During emergencies, on-air television broadcasters have a long and distinguished tradition of supplying long form information from emergency managers and other sources that is simply not possible to put in local and state EAS warnings limited to two minutes, Tweets, text messages, or WEA. Continuing the practice of blanket override that deprives viewers of real-time information due to blanket cable override simply does not pass the common sense test.

Eliminating blanket override will be a costly and long-term process, and one that the Cable industry will surely resist. There may be opportunities to implement features of ATSC 3.0⁴, but that is uncertain as of this writing. I suggest that the Commission should forthwith work with all its Federal Partners including the U.S. Department of State to convene an international warning summit that has to include the off shore vendors who control features that can be built into future set top boxes and chip sets to stop blanket override. To borrow and expand a phrase from radio talk show host Dr. Laura, the Commission needs to “*do the right thing, right now.*”

SECTION 4

The Virtual Red Envelope (VRE) concept originally proposed by the Broadcast Warning Working Group (BWWG) in the Docket 14-200 proceeding is an automated message authentication/validation method that gets its name from the Cold War-era EBS Red Envelope familiar to those who worked in broadcast

⁴ https://en.wikipedia.org/wiki/ATSC_standard

stations before 1997.⁵ This system proposed by the BWWG was based on and named after the real red envelopes that the Commission sent to every Part 73 Licensee.

The VRE concept would use existing Integrated Public Alert and Warning System (IPAWS) servers to distribute a short validation code as part of the IPAWS Required Weekly Test. Upon receipt of an enhanced EAN and NPT message created only by the Presidential Entry Point system and authorized test encoders, recipient equipment would compare the validation code of the enhanced message header to the prior downloaded and locally stored code. A code match would compel the recipient equipment to automatically and immediately forward the entire enhanced EAS message in accordance with Part 11 requirements. A non-match would trigger an alarm requiring manual review of the message for verification of origination.

To maintain complete conformance with the SAME coding standard, the validation field would be appended at the end of the EAS message header. The single location code EAN and NPT message types would trigger the recipient equipment to accept the added field for decoding and validation.

To minimize bad mismatches, missed code circulations and the staggered weekly test schedule based on time zones, the system would consist of the three most recent weeks' validation codes. The EAS message's enhanced header would include all three weeks' codes in the field. If any one of the three codes matches, validation would occur. Recipient EAS decoders that determine that current validation codes have lapsed would poll IPAWS for that week's correct validation code.

The VRE authenticator could be achieved via the addition of a digital hash for FSK messages and would carry the IPAWS digital certification, a unique message ID, and the proposed YYYY parameter so NWS/SAME EAS transmissions will not be rendered ineffective. When an EAS decoder checks against these parameters, EAS will have extremely strong and changing Virtual Red Envelope authentication that could be extended to other IPAWS aggregators. For legacy analog EAS security enhancement, there is a protocol called textual data exchange (TDX) that can be used.⁶

⁵ <http://apps.fcc.gov/ecfs/comment/view?id=60000985780>

⁶ Analog legacy EAS need not be left out of enhanced secure authentication. TDX (Textual Data Exchange) is an encoding schema that is spectrally more efficient than the AFSK used for the EAS header. TDX can provide an analog VRE version of the CAP digital signature to be decoded downstream. A TDX packet, depending on its content, can be quite unobtrusive adding only additional data tones of as little as 0.27 to 1.25 seconds in length for key authentication information.

SECTION 6

The concept of the Local Relay Network (LRN) as explained in some detail in the Washington State EAS Plan was implemented in the Los Angeles County Local Area EAS Plan long before EAS replaced the Emergency Broadcast System (EBS). Simply stated, the Los Angeles County Sheriff's Department set up a VHF Repeater that Los Angeles EAS Participants could directly monitor using an inexpensive receiver. This LRN system assures that Los Angeles EAS Participants who directly monitor Los Angeles County, receive originated EAS events without any delay caused by latencies inherent in the LP relay model. In fact, the two LP-1 stations in the Los Angeles County Plan have been receiving LA County tests and activations from this source for over 20 years.

There are now two methods of distributing public warning messages via the EAS: (1) Legacy Analog systems using SAME technology (2) Newer Digital system using CAP/IP technology. The Commission must, in any changes to 47 CFR Part 11, assure that these two methods function as seamlessly as possible to reinforce each other, and assure that all EAS hardware and software is so certified.⁷

The legacy "daisy chain" model imposes LP relay between local and state warning originators and the EAS Participants who have volunteered to get them to the public.

The "daisy chain" relay system must finally be recognized as having serious and potentially life-threatening latency and reliability issues. Therefore the legacy EAS LP model "daisy chain" is patently not suitable as a reliable means to warn a public at risk for "short fuse" warnings now possible for events like tornados, flash floods, and earthquake alerts. I strongly recommend that the Commission adopt this conclusion and move away to the greatest extent possible from the LP relay model.⁸

Another reason to move away from the "daisy chain" is that LECC's and SECC's are now encountering Local Primary stations that are electing to NOT participate. This trend, if continued, will render a severe blow to the setting up, reliability and functionality of monitoring assignments for local and state EAS. Therefore, from now on, the warning mission will be better served through greater use of Point-Multi-Point, sometimes called one to many systems, AKA LRN's. Continuing the obsolete practice of imposing a burden on Broadcast Stations to act as relay stations must end before those now volunteering end it for us.

⁷ I suggest that FEMA's Joint Interoperability Test Center (JITC) should be the place where common standards for aspects of EAS conformance should be set forth and measured. The Commission does not have a corresponding EAS equipment certification resource as far as I know. [<https://www.fema.gov/testing-ipaws-lab-jitc>]

⁸ This will not be possible in all areas where geography, radio propagation, and/or political considerations preclude migration to an LRN model.

The EAS Participant role is best defined and realized as, “The reliable and essential last-ditch means to relay messages directly from emergency managers in charge targeted to citizens in their coverage areas.”⁹ Relaying or distributing EAS message sources to all FCC-regulated systems that reach the public (Radio, TV, Cable etc.) must be handled using background wired, wireless, analog or digital channels -- not by using in-band 47 CFR Part 73 program streams!

SECTION 7

I commend to the Commission the example of the Washington State pilot project that took early advantage of FEMA’s Integrated Public Alert and Warning System (IPAWS). Washington State uses a private company that serves as the State’s Common Alerting Protocol (CAP) aggregator. Some other states use other private aggregators that supports CAP. A state can even set up its own CAP aggregator. At the broadcast station or cable-system level in states like Washington, EAS Participants poll both FEMA IPAWS CAP and the state/local system.

The Commission must support efforts to propagate use of the FEMA CAP aggregator for local/state EAS warnings or setting up their own aggregator for local/state EAS events in all 50 states. With a growing number of new software players in this arena, the Commission must work with FEMA to assure seamless compatibility and high reliability by having all current and future aggregators go through a formal and rigorous testing protocol in FEMA’s Joint Interoperability Test Center (JITC).¹⁰

One word of caution. In states like California where there are 56 emergency Operational Areas (OA’s), individual cities in those OA’s should work through normal emergency management channels. In Los Angeles County in California, for example, there are 58 individuals incorporated cities. If all 58 were certified for warning origination using either legacy EAS or CAP, the risk rises for what has been called “emergency message flooding”.

SECTION 8

An effective SECC must function as a steering and coordinating committee for all EAS and related public warning systems in a state under the auspices of that state’s emergency management agency. NOT doing this disconnects the proper coordination of state and local warnings from the very emergency management and public safety agencies that we rely on to issue those warnings!

⁹ My quote. Local Relay Networks (analog and digital) can be the best “direct means” to not only eliminate reliance on LP station relay, but address the real world problem of how to propagate EAS warnings if an LP station goes off the air.

¹⁰ <https://www.fema.gov/testing-ipaws-lab-jitc>

The SECC's must exist to provide both guidance for the LECC's in each state, and receive essential information on local issues, some affecting EAS Participant monitoring assignments, that the SECC needs to know about. To make this an effective approach, each LECC should designate a representative to serve as a member of their state's SECC.

The role of the LECC is critical to the mission of EAS for a number of reasons:

1. In 'Home-Rule States', the state has limited authority over their counties.
2. States like California and Washington are divided into a large number of 'Operational Areas'. Operational areas can be one county (Example: Los Angeles County with over 10 million residents and 58 cities and large unincorporated areas) or be comprised of several counties that work together for many aspects of emergency response (Example: Riverside County /San Bernardino County that together represent possibly the largest joint emergency Operational Area in the USA).
3. Operational areas can include portions of adjacent states (Example: California and Nevada).
4. Each emergency management functional Operational Area must have a viable LECC.

A precept of the professionals in emergency management is that all emergencies are local. Based on this core precept, emergency managers in local areas are the individuals best suited to originate public warnings to EAS Participants, as well as the growing number of non-broadcast warning options. The linkage between those we depend on for accurate and timely warnings and follow-on emergency public information and EAS Participants needs to be reinforced and supported with cross training, funding, and clear goals and objectives that are not yet part of the USA's de-facto emergency management governing document, the National Incident Management System (NIMS) previously cited. There is also a growing need to assure that there is not only careful coordination of warning messages that flow out to all types of warning systems, but a place to conduct after action reviews that can lead to adjustments and improvements to the warning process. SECC's and LECC's must be key players in this process.

Currently Part 11 is both vague and lacking in direction and support of the SECC and LECC effort. This can change in a constructive direction by the Commission working with FEMA to bind these partnerships to local and state emergency management efforts. Here I must ask a question: "Can Part 11 language be legally crafted to serve as a way to explain this without violating the legacy voluntary nature of local and state EAS participation?"

SECTION 9

Those of us in the field have seen a serious lack of coordination between the new WEA and EAS, as well as other warning systems. The telecommunications providers who offer WEA to their customers are not as yet seen as partners with SECC's so both WEA, EAS and other warning systems can better complement and supplement each other. As we know, WEA only provides "short form" warnings to cell phone users. EAS and follow-on emergency public information have to fill in the blanks that are impossible for WEA to convey to a public at risk. While the Commission in all likelihood cannot adopt language in Part 11 to make this happen, WEA and all public warnings need to be coordinated, and the best place to start would be to bring the WEA providers into the SECC family.

SECTION 11

Social Media has arrived as a serious player in the warning community. I share the concerns of other warning subject experts that Social Media should have established ground rules for authenticating and sourcing their information. While this is certainly outside of language that could be included in Part 11, I take this opportunity to put on the record that the entire range of emergency public information needs the long-awaited national policy called for in the reports written by the Partnership for Public Warning (PPW). As one of the 17 founding Trustees for the PPW who contributed to those reports, the time for the USA to articulate a clear national strategy was overdue in 2001, and 15 years later is still an unfulfilled need.

SECTION 25 & 26

It appears that that the Commission wants to create a master monitoring Mapbook from the information obtained via the Electronic Test Reporting System (ETRS). The Commission apparently believes that the proposed enhanced Mapbook will help the SECC's be aware of the operational status of every licensee within a state so it can coordinate monitoring assignments for each FCC Licensed participant. To some, including this writer, this perception can have the unintended consequence of turning SECC's into the "EAS Police." While the CSRIC report that is referenced does call for the Commission to enhance the ETRS to become a comprehensive source for monitoring information, I doubt the CSRIC working group I participated in that wrote the ETRS recommendation intended to extend its use quite that far. In a state like California, and I suspect many others, it is impossible for a volunteer SECC to do what the Commission appears to be asking us to do.

Citing the current California situation, the SECC has lost meaningful liaison to many of the working LECC's in its 58 counties. In some of our counties, LECC's were simply never formed. We have no resources to accomplish the apparent intent of the Commission within what is at core a volunteer effort. As things currently stand, if we produced a compilation of the local monitoring assignments for the 58 counties, we have no way to assure the Commission that it is accurate. Further, without viable LECC's in each of California's Operational areas working

with each other local emergency management, and local National Weather Service offices, they cannot assure accuracy or implementation.

I would like to point out that Washington State has long used a method using a simple matrix that is an aid to enable any EAS participant in that State to determine what they should be monitoring. This method, while discussed at great length in the aforementioned CSRIC Report, will not work everywhere.

I join with other EAS subject experts in recommending that the Commission create a policy to share the findings it gathers from EAS Participant entries to the enhanced ETRS with each appropriate SECC to help them in the impossible task being asked of us.

SECTION 32

While a great deal of good can be accomplished by reconstituting the EAS National Advisory Committee (NAC) Charter, more good can be accomplished for the overall United States warning effort if an external public/private partnership can also be formed. National Advisory Committees are not the best possible vehicles to generate truly innovative approaches to improve the warning process. That said, this writer realizes that such a partnership is well outside the purview of the Commission.

Since the Partnership for Public Warning wrote the reports in 2002 that finally led to the implementation of the Common Alerting Protocol (CAP) as the Integrated Public Alert and Warning System (IPAWS), there has not been an effective external public/private partnership where warning subject experts, EAS Participants, vendors, publics underserved by the warning process, and the Federal Partners¹¹ can work together to improve the process.

As far as a re-chartered NAC is concerned, the model developed at the start of the EAS brought in representatives of each SECC as members, along with a balance of the entire and expanding warning stakeholder community as well as representatives of all the Federal Partners.¹² A steering committee would be set up under a new NAC charter to include but not be limited to overseeing the process, establishing working groups, coming up with goals and objectives, and writing periodic reports.

¹¹ When the term "Federal Partners" is used in conjunction with the EAS, the three most often mentioned are the Federal Communications Commission, the Federal Emergency Management Agency and the National Weather Service. When the AMBER child abduction EAS code was adopted in 2002 the Department of Justice (DOJ) was heavily involved. In the opinion of this writer DOJ should still be recognized as a key Federal Partner for EAS, as well for the growing number of other public warning means, including social media.

¹² I was the FCC's National Advisory Committee Chairman from 2000 to 2002.