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In My Opinion...

Dean Says:

The Controversy Continues— Part 3

For the last two issues I've written about one aspect of NFPA 72-2010, *National Fire Alarm and Signaling Code*[®], that connects this edition with all previous editions: controversy regarding certain requirements within the *Code*.

One particular controversy continues to plague Authorities Having Jurisdiction as they try to sort out the proliferation of alternative service providers offering telephone services that may also transport alarm signals.

As a result of the Hush-A-Phone and Carterfone decisions discussed in the last issue, fire alarm system manufacturers began to explore alternative means of transmitting signals between a protected premises and a supervising station. Eventually the Digital Alarm Communicator System (DACS) emerged as a useful alternative.

DACS used plain old telephone service (POTS) to transmit signals. The downside compared to previous transmission methods, such as McCulloh or interrogation/response multiplex, consisted of a lack of continuous or near-continuous monitoring of the transmis-

sion pathway for operational integrity.

In shaping requirements for DACS, the NFPA Technical Committee on Central Station Signaling Systems (TC on CSS), examined the method of monitoring for integrity used by radio-type master fire alarm boxes installed and maintained under the requirements of NFPA 1221, *Standard for the Installation, Maintenance, and Use of Public Fire Service Communications Systems*. These requirements relied on an automatic test signal from the radio master fire alarm box transmitted once every 24 hours.

The TC on CSS reasoned that if a DACS used two loop-start POTS telephone lines and transmitted an automatic test signal every 24-hours over alternating lines, this would establish a somewhat equivalent method of monitoring for integrity. Normally, a loop-start telephone line has a nominal 48 vdc present. The Digital Alarm Communicator Transmitter could monitor the presence of this voltage on each telephone line. Loss of the voltage on one line could initiate the DACT to send a trouble signal over the remaining line and also actuate local audible and visible trouble signal appliances at the protected premises.

The automatic 24-hour test signal would disclose the catastrophic loss of both telephone lines. As with the radio-type master fire alarm box, the DACS could have a maximum time out-of-service of 23 hours 59 minutes.

Similar requirements for the Digital Alarm Communicator Receiver (DACR)

at the supervising station relied on the monitoring of the 48 vdc on all connected incoming POTS loop-start telephone lines and on the signaling traffic, including the automatic 24-hour test signals from all connected DACTs, to ensure that the signaling pathways to the DACR remained operational.

These requirements placed in NFPA 71, *Standard for the Installation, Maintenance, and Use of Signaling Systems for Central Station Service*, found their way into NFPA 72, *Standard for the Installation, Maintenance, and Use of Protective Signaling Systems*. NFPA 72 applied these requirements to Proprietary Protective Signaling Systems and to Remote Station Protective Signaling Systems.

For purposes of this discussion, please note that these requirements absolutely relied on the fact that the 48 vdc on the POTS telephone lines connected to the DACT and DACR originated at the first telephone company wire center and extended directly to the protected premises or supervising station. This will become very important as the operational procedures of the various public utility telephone companies begin to evolve under the rules established by the 1984 Modification in Final Judgment in *United States vs. AT&T*.

As I discussed in the first installment, prior to the MFJ, AT&T has enforced very strict standards throughout all operational divisions of the "Bell System." Independent public telephone utility companies had largely adopted those standards in order to obtain long distance service from AT&T. This created a very monolithic, yet highly reliable, telephone system across the United States.

Under the MFJ, a much more technologically relaxed environment would take the place of the rigid AT&T procedures. Operational practices that AT&T had forbidden would gradually become commonplace. Some of these new practices would significantly change the overall reliability of the POTS as a means of transmitting alarm signals.

I will continue this discussion in the next issue of *TM-WSR*. □

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**Volume 13, No. 4
Page 14**

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