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**Docket:** NRC-2015-0112

Determining the Effectiveness, Limitations, and Operator Response for Very Early Warning Fire Detection Systems in Nuclear Facilities

**Comment On:** NRC-2015-0112-0001

Determining the Effectiveness, Limitations, and Operator Response for Very Early Warning Fire Detection Systems in Nuclear Facilities (DELORES-VEWFIRE); Draft NUREG for Comment

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## General Comment

In regards to Draft NUREG-2180 concerning the performance of very early warning fire detection systems, we offer the following comments.

The NUREG test results performed on a single sample wire provided a repeatable specimen for each detector, however, there are many different components in electrical panels that give off various gases and products of combustion that are different than the sample wire in the test program. It is also important to recognize that the sensitivity of the detector must be able to respond to a wide range of degraded components. Therefore, the demonstration of the detector's sensitivity during the initial commissioning test must be proven.

The VEWFDS system must comply with National Fire Codes NFPA 72 and NFPA 76. NFPA 76 states the system must not exceed a maximum air transport time of 60 seconds to bring the smoke sample back to the detector and have a detection sensitivity at each sample port of not less sensitive than .2% obscuration/ft. Following the initial installation, the commissioning test must be able to demonstrate and physically prove the system is performing within the NFPA parameters. Likewise, any subsequent modification to the system or change in the operating environment should also include a performance test.

*VEWFDS = ADM-03  
Call = G. J. Taylor (987)*

*508st Review complete  
Nempele = ADM-013*

In order for the system to be fully recognized and accredited for meeting the NFPA requirements, the system must have the capability to physically prove it is operating within the guidelines of NFPA 72 and NFPA 76. The only way to accomplish this is to physically test the transport time and sensitivity requirements (at each sample port) when it is installed and commissioned. The equipment vendor, customer and their qualified fire protection representative should witness the tests to verify the system is operating within the parameters of NFPA 72 and NFPA 76. This ensures the design is reliable and credible in receiving very early warning credit.

We also feel it is important that the plant have the ability to inspect and prove the detector is operating within NFPA guidelines at any time necessary without a physical test each time. Once the VEWFDs has been physically tested and proven during the SAT (site acceptance test), the VEWFDs must also have the ability to display parameters proving the system is operating within same NFPA guidelines without the physical test. This V&V (validation and verification) of the physical test will offer displayed information and operating parameters which must be based on the combined physical U/L test approval data and the results of the physical SAT testing. This will give the plant the ability to ensure the system is operating within NFPA guidelines without the need to physically test the system each inspection.

Note: The VEWFDs should be physically re-tested and verified once per year.