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To: zzMSHA-Standards - Comments to Fed Reg Group
Subject: RIN 1219-AB44

My name is William J. Elwood. I worked for about 2.5 years on underground mine monitoring systems in the early 1980's. I have been to the Jim Walter's Resources Mines that had one section that took a good hour to get to and the Carbon Monoxide Monitor there had no visible proximity to any other electrical source that could have "zapped" the communications card in that monitor. Yet the communications card appeared to have been struck by lightning. It is remarkable experience to travel so far from the surface and find evidence of lightning strikes in equipment. There is a paper that was published by MSHA personnel that made some interesting discoveries regarding lightning. I believe it is stored on the ANSI Web page. There is meteorological documentation that suggests that there was a lightning strike near the Sago Mine at about the time of the ignition. It is my opinion that it would be a big help to eliminate the chances of having cable's zapped by lightning. One way would be to eliminate any power or signal cable's entry near any overhead metal structure.

The rush to establish communication devices in the "RF Jungle" nature of a working coal mine has serious drawbacks, in my opinion. If you locate your miners, you would still have to remove enormous volumes of Carbon Monoxide before rescue workers could even enter the mine.

In the years I spent underground I found it to be a Radio Frequency "Jungle". Our Carbon Monoxide (CO) monitors were routinely damaged by what appeared to be lightning strikes. With so many other devices underground that operate at so many different power levels under a blur of different stages of the mine production, it's not an easy task to accurately identify and repair electronic equipment that had been damaged by an unknown source of electrical energy.

I mention this particular situation at Jim Walters because it was impossible to identify or locate any power source even near the device that could have done so much damage to the communication card. I have repaired enough burnt communication cards to be able to say that lightning was certainly a big factor and in many cases, taking the time to route cable, sometimes above ground, proved to be the best and only remedy. But the particular CO monitor that I am speaking about was more than 5,000 feet underground and almost 5 miles away by mantrip. This is not a common place for lightning to dwell, yet the evidence was quite convincing that it was a lightning strike.

I am hesitant to discuss any communications devices being used underground. If the FCC were to "lend a hand" in this area it may prove to be a big asset to reduce the "Jungle" effect of having to deal with large and sometimes interfering devices.

My first comment regarding immediately deployable system would be one that identifies the Coal Mine Operators and the Coal Miners themselves as the most important asset in dealing with any disaster like Sago. It is my strongest belief that with a healthy communication link between the owners of any mine and their people, both supervisory and workers is the single most important rescue or recovery tool.

At Sago, based entirely on what I heard on the news, the Carbon Monoxide levels were so high that it took many painful hours to reduce the CO levels to the point where safe entry was finally approved. There has to be a way to rapidly deploy drilling equipment on the surface of any mine so that it could accommodate surface drilling rigs to go to exact pre-planned and cleared places to entrain high pressure air into the mine to flush the CO rich air out of the mine. If pre-planned properly, determining the exact boring locations at the surface would result in a fresh air environment that would permit rescue workers to advance to where the trapped miners are located. I would suggest that every mine in America deserves a site-surface plan that would correctly identify where to place the rigs above ground. Having volumes of Carbon Monoxide the size of a mine like Sago is not conducive to survival.

Acoustic and Seismic sensors would be an ideal solution to locating trapped miners. The problem with existing affordable sensor systems is that they require a such a large signal to work properly that they may not be effective over a realistic distance. Developing both on-site microseismic sensor systems that are functional through large volumes of rock and rubble and above ground monitoring stations need the development funds or they simply won't be realized any time soon.

The most important tool to facilitate rescue technology, in my opinion, would be to have Coal Mine Owners meet with

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thier Union leaders, were applicable and encourage discussion of known problems and known solutions. Having focus on ensuring that any mine in America can be "flushed" with fresh air rapidly is easier said than done at some mines. Discussion, active on-going discussion, with the men who work underground and thier representatives coupled with a cooperative management team can easily demonstrate what it would take for thier mines to be safer places to work. The people are the very best tools that any rescue team could ever hope to have.

Thank You,

William J. Elwood