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To: Scott Arnold [REDACTED]; Mike Council [REDACTED]

Subject: Fargo ND box exam

Hello all,

Box exam went well. The box is powered by a 24 volt NiMh battery. In October the pilot sent the battery box back to NOAA because it wasn't holding a charge (see pilot logbook entry 10-17). He started using a new (different) box on 10-20 so that removes the pilot logbook entries in September that reference "smoky." Also, the NOAA guys mentioned that they ask the pilots to document any type of non-standard weather conditions (such as smoke) so they are not surprised when they find it in their air samples. They have been using this box design for 12 years at 14 different aviation sites. They also use the same box design at ground based stations. They have not had any reports of fire.

The box does not run all the time. The only time the compressor runs is when the pilot pushes the button on the remote control he attaches to the glare shield. They climb up to 25000 and the pilot pushes the button. The system runs for 2 to 2.5 minutes while it takes the sample and then shuts off. The pilot starts a descent. When the plane gets to the next altitude the pilot pushes the button again and the compressor runs for another 2 to 2.5 minutes. The pilot takes samples at different altitudes as the aircraft descends.

So we opened the box up. The battery didn't show any issues. The heat damage appeared to originate externally. A vast majority of the wiring still had its insulation intact. I have attached one of the pictures the lab took. The rectangle across the middle is an air passage way. The battery box is at the "bottom" of the picture, the two compressors are at the "top" of the picture. Based on the exam it appears that the box had nothing to do with originating the fire.

Let me know if you have any questions.

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