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FROM : National Wildfire Coordinating Group

REPLY TO : NWCG@nifc.gov

DATE : 08/22/2002

SUBJECT : SAFETY WARNING : Failure of Sigg type bottles

Fuel bottles in the field were found to bulge and the crimp holding the threaded plug failed due to excessive pressure. During tests all of the four brands tested failed by splitting out the side of the bottle or at the crimp in two piece constructed bottles. Some bottles failed at relatively low pressures. Pressure is generated by filling the bottle completely to the top and exposing the bottles to temperatures in the 80's.

From the limited testing performed to this point, the following conclusions can be reached:

Emphasis should be placed on making sure that these fuel bottles are not filled beyond the manufacturer's recommended fill line. MSR prints a warning on each bottle specifically stating that overfilling may cause extreme pressures as the temperature rises.

Of the four brands tested, (MSR, Stansport, Primus and Optimus) only the MSR meets the requirements of GSA's IPD for aluminum fuel bottles. The MSR fuel bottle is of one-piece construction and exceeds the 400 psia burst pressure requirement. The other three brands are of two-piece construction and do not meet the minimum burst pressure of 400 psia specified in the IPD.

Although further testing should be done, it appears that the cap seal design of the MSR bottle allows the o-ring seal to fail before the bottle bursts. This allows only a small amount of fuel leakage if the bottle is overpressurized instead of allowing the entire contents of the bottle to escape.
