LOG OF MEETING

SUBJECT: Review and Update of Fireworks Standards by the American Fireworks Standards Laboratory (AFSL)

DATE OF MEETING: December ~~13/14, 1997~~ 13-14-96

DATE OF LOG ENTRY: June 12, 1997

PERSON SUBMITTING LOG: Neal G. Gasser, Chemist, Division of Chemistry

LOCATION: Ramada Inn, 8400 Wisconsin Avenue, Bethesda, MD, 20814

CPSC ATTENDEE: Neal G. Gasser, Chemist, Division of Chemistry

NON-CPSC ATTENDEE(S):

John Rogers, Tom Scaman, Jessie Barrera, John Conkling, Robert Fletcher, Chi Kay Cheung, Dale Miller, Jack Shannon, Larry Brown, Don McCaulley

SUMMARY OF MEETING:

Subjects Discussed:

- Discussed defining an Expelling Charge (break or burst charge). The definition will contain phrases such as: 1.) must be black powder or equivalent; 2.) a combination of potassium nitrate with a non-metallic fuel; 3.) use of any other combination will require the submittal of test data demonstrating that the material is equivalent in performance to black powder.

- Discussed placing an expelling charge weight limit that is dependent upon tube size. For shells with diameters greater than 1 inch, the expelling charge would be limited to 25 percent of the pyrotechnic weight in the shell. For shells less than or equal to 1 inch in diameter and contained 5 grams or less of chemical composition, the expelling charge would be limited to 50 percent. There was no discussion about shells that were less than or equal to 1 inch in diameter and contain more than 5 grams of chemical composition.

- The Standards Committee tabled the review of a possible exemption of large missiles from the Eighteen Degree Tilt Block Test in the AFSL Standard. AFSL will examine this standard at a future date to determine if it is unduly restrictive. These missiles

would still be required to meet CPSC's Height:Base Ratio Test and the Twelve Degree Tilt Block Test.

- A request was made to AFSL that the Technical Standards Committee review and approve specific labeling for Parachutes and to add them to the other Cautionary Labels. The review was tabled for examination at a later date.

- A statement pertaining to 16 CFR 1507.6 (Burn/Blow Out) was added to the following standards: Combination Items, Novelties, Spinners, Smoke, Wheel and Axles, and Reloadable Aerial Shells.

- A motion was made that AFSL would begin to implement and enforce the firecracker provision that prohibits look alike firecrackers, that is, M-80's, M-100's, M-90's, etc. AFSL stated that they will begin implementation of the provision, and phase in the entire standard over time. No date was given.

- The Technical Committee will either ask or recommend to the AFSL Board of Directors that AFSL petition CPSC to amend the regulations to ban look alike firecrackers with the color and configuration of banned explosives.

- Item numbers 2, 4, 6-11, of **Attachment "A"** will be incorporated into all AFSL Standards. Item number 3 will be incorporated into all AFSL Standards except Firecrackers, Ground Spinners, etc. Item number 5 will be incorporated where appropriate (Definition of "Crackle").

- **Attachment "B"** will be incorporated into all AFSL Standards.

- The Technical Committee will send a letter to the AFSL Board of Directors to request that Factory ID Numbers be placed on each fireworks device, and that this provision be incorporated into all of the AFSL Standards.

- The Committee discussed and agreed to incorporate the 3 to 9 second fuse burn time as a requirement for single unit firecrackers.

- The Committee discussed and agreed that Fountain type devices: 1.) with spinners, reports, and other comparable effects are subject to the AFSL Standard for Combination Items; 2.) The pyrotechnic composition in fountain type devices must not produce a continuous flame greater than 0.5 meters (20 inches).

- At a future date, when new labels are printed, the following phrase will be added to the labels: "Soak with Water after use." These labels will be placed on fountains, comets, mines and shells., and multiple tube mine and shell devices.

- The Committee discussed the following topics about Sparklers: 1.) Slag release and errant sparks from Sparklers, was tabled until a future date; 2.) Sparklers may contain the effect called "cracker"; 3.) Sparklers can use wooden sticks or bamboo.

- The Committee discussed various topics pertaining to Reloadable Aerial Shells: 1.) The safety aspects of an exploding aerial were discussed, and changes were made. **Attachment "C"** is the new schematic of trajectory and performance for reloadable aerial shells. The wording "Minimum Height" was changed to read "Minimum Burst Height"; "No Flaming Debris" was allowed to fall to the ground, however, a level was established that raised "ground level limit" up to a level of three meters. The circle representing the "Maximum Burst Diameter" was lowered so that the center of the burst diameter coincided with the "Minimum Burst Height" line.

- The Roman Candle Standard was discussed by the Committee and: 1.) AFSL reinstated the requirement that all roman Candles must be provided with a spike suitable for mounting the candle in the ground; 2.) Discussed changing the requirement regarding the bottom void space, and the length of a spike (if present). A final decision was tabled until a future date, however, the standard would remain the same for the present; 3.) The requirement stating that a roman candle "shall not produce a continuous external flame greater than one foot" was changed to "must not."

- The Technical Committee discussed whether or not to include a provision into the Standards stating that "The device must be constructed of material that will not continue to burn after the device functions." This provision was also tabled for further discussion, and research.

- The Technical Committee requested the Board of Directors, to have AFSL enforce the requirement that "Helicopters must have the top clearly marked for proper functioning."

- Ground Spinners: 1.) The committee discussed and changed a "NOTE" in the standard to state that "Ground Spinners must not contain reports"; 2.) A provision was added following discussion that ground spinners must stay within a 10 meter diameter circle while functioning.

- Wheels - Axles: 1.) The committee discussed whether or not to reduce the weight of the total pyrotechnic composition in a wheel from 240 grams to 200 grams. The committee approved the reduction in weight; 2.) A provision was added stating that there could not be any slag expulsion from a spinning wheel; 3.) The radius of the flame was defined as "The radius of the flame is measured from the center of the axle to the edge of the flame from an operating wheel, and must not exceed one meter"; 4.) The following provision was added: "For multi-effect or multi-tube items, the timing between effects (or tubes) must not exceed 10 seconds."

Future Activities:

- Technical Sub-Committee meeting was scheduled for January 6, 1997. The agenda was to discuss various items that were "tabled", such as slag, flame resistance of imported paper, 18° vs. 12° tilt block test for large missiles, void space in Roman Candles, Helicopters, and Sparklers.

- Next Technical Standard Committee meeting was scheduled for the third week in August, 1997.

Attachment A

1. The pyrotechnic chamber of aerial fireworks devices must be constructed of material that will not continue to burn (flame) after the item functions. (JJ 2-2.12) (...will not catch fire as a result of operation).

   NOTE: Glowing or smoldering of the tube after functioning is not considered to be burning.

2. The method of fuse attachment must not adversely affect the performance of the _____ _____ during operation.

3. Fuse used as the lead into the body of the item must be safety fuse. [RC 2-1.6.1 1507.3(a) (1)] (except - Firecrackers, Ground Spinners, etc.)

4. The location of the fuse must be obvious or be clearly identified on the exterior of the _ __.
   (RC 2-1.6.2)

5. Crackle. Spark-like bursts accompanied by a popping or snapping sound, produced by granules or flakes of pyrotechnic composition.

6. The pyrotechnic chamber in a fireworks device must be constructed in a manner that allows functioning in a normal manner without burnout or blowout. (16 CFR 1507.6)

7. The base or bottom of fireworks devices that are operated in a standing or upright position must have the minimum horizontal dimension or the diameter of the base equal to at least one-third of the height of the device including and base or cap affixed thereto but not including and protruding fuse. (16 CFR 1507.4)

8. Fireworks devices that require a fuse must utilize only a fuse which will burn at least 3 seconds but not more that 9 seconds before ignition of the device.
   [16 CFR 1507.3(a)(2)]

9. Prohibited Acts, Sec. 4(f) FHSA. The use of a container which, though not a reused container, is identifiable as a food, drug or cosmetic container, for a hazardous substance.

10. The finished item must not be designed or packaged in such a manner that it could be confused with candy or other food.

11. _____ must be assembled well enough to prevent damage to the item during transportation, handling and normal operation.

Attachment B

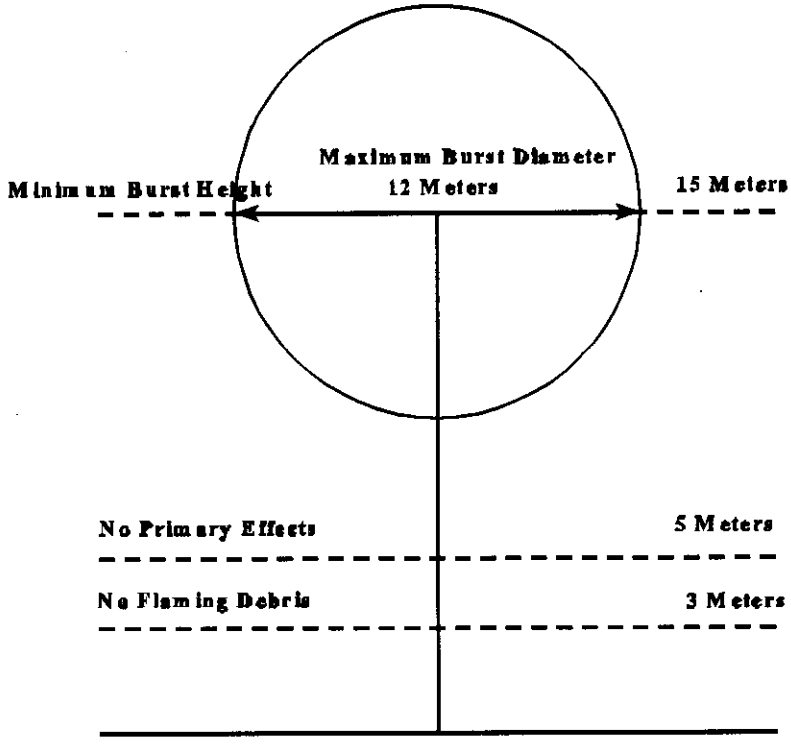
Should the following requirements be added to Chapter 5, SHIPPING?
(These are in the original AFSL Standards).

Product design, packaging, and case packing must produce a finished shipping case in which simultaneous explosion of all the items does not result from ignition of one item in the shipping case.

The package must not be so difficult to open that the contents might be damaged as a result of opening.

These items must be securely packaged for shipping in such a way that they are protected from moisture or physical damage during transportation and so that there is no risk of any of the contents escaping from the shipping case.

Schematic of Trajectory and Performance for Reloadable Aerial Shells



Attachment C