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From: The Primer Team of F. Lopata, O. Laster, F. Whitmore

Subject: Primer Team Objectives, Scope of Work and Proposed
Timetable

The three of us met and set forth the following objectives:

- A. Determine the consistency of the explosives manufacturing processes as they are carried out now.
- B. Determine uniformity/homogeneity of 5074 primer mix manufacture.
- C. Determine uniformity of energy output of the Remington shotshell component primer mix and competitive shotshell component primers.

Objective A will be met by analysis of data collected over two weeks from the manufacture of lead styphnate, trinitroresorcinol, and tetracene. The Brinkman Particle Size Analyzer and eight-inch sieves will be used to determine particle size distribution. Apparent density and pH of cover water will be done also. Differential Scanning Calorimetry will be used to determine melting point and decomposition characteristics. Spectrometry will be used to establish "fingerprints", which serve to identify reaction completion and purity. Collection: 1/18/93 to 2/3/93. Analysis: 2/3/93 to 2/10/93.

Objective B will be pursued after Objective A is met. Chemical analysis, microscopy, and spectrometry will be used to determine percent composition or mix uniformity within a mix batch. 5074 mix is targeted since it meets the shotshell emphasis. Purchased raw materials will also be examined to see if materials agree with their certification. Collection: 2/17/93 to 2/24/93. Analysis: 2/27/93 to 3/3/93.

For Objective C, we anticipate using Parr bomb calorimetry to determine heat output vs. charge weight of unconfined mix. The primer bomb will be used to determine pressure-time and ignition uniformity of a component primer. Federal and Winchester component primers will be examined for these characteristics, as well as the Remington component primers. Collection: 3/10/93 to 3/24/93. Analysis: 3/24/93 to 3/31/93.

NOTE 1: Our plan is to make recommendations at the end of each portion (A, B, C) based on whether or not "consistency" is determined.

NOTE 2: "Consistency" will be defined as having the standard deviations in the data collected to be below some to-be-agreed-upon

percent of the mean values of that data.

NOTE 3: Beyond these three objectives, metallics and assembly become the next characteristics to be considered. This "further work" has been in process for some time now in the 149/138 work.

FGL