Review of the "Economic Evaluation of Propellant Reuse/Recovery Technology"

SUMMARY:

The objective of this task was to evaluate the economic feasibility of reclaiming and reusing propellants from obsolete and unserviceable munitions. The study evaluated two approaches: 1) resolvation of the obsolete propellants to produce new propellant and 2) solvent extraction of obsolete propellants to recover individual ingredients.

PROCESSES:

Resolvation process involved grinding of the obsolete propellant underwater, then drying the material, and finally packing it into drums for storage. From storage, the drums would be sent to existing production lines. It was estimated that this process could have a production rate of 500 pounds per hour.

Solvent extraction also involved grinding of the obsolete propellant underwater similar to the resolvation process with the addition of solvent extraction equipment. Only a bench scale test was conducted and it utilized methylene chloride which is classified as both a carcinogenic and mutantigenic to human health.

FINDINGS:

With an investment of $5.8 million, operating a resolvation process 24 hours per day and processing 12,000 pounds of M6 per day would result in a credit of $3.9 per year. The study recommended that the Army proceed with a detailed design and cost study of the grinding process for the potential construction and operation of a facility at Radford AAP.

The study also recommended further study of the solvent extraction process.

APPLICATION TO CAMP MINDEN:

One of the issues with this approach is that the material will need to be handled several times which raises a safety concern. Conducting the grinding underwater will help mitigate some of these concerns.

This study assumes that there is a market for the repackaged M6 material. Besides poor management, lack of a market was one of the reasons we now have 15 million pounds of unstable M6.

The study does not indicate if the resolvation process improves the stability the material or just preps it for use in the production line.

Assuming you can operate at 24 hours per day and process 12,000 pounds per day, it will take approximately 3.5 years. Or you would need to construct 4 lines to perform the resolvation process to complete within 12 months.