Detailed explanation of AD847576:

AD847576 (originally identified as MAGI-6701) describes the initial development of 3D computer geometry descriptions for Vulnerability/Lethality purposes in 1967.

Parts 1 and 2 of AD847576 are an introduction to and overview of the technical effort and basic combinatorial geometry technique.

There were two primary applications that drove development of this software, both of which are documented in detail in this report:

1. Part 3 - “Conventional Projectile Analysis” – this application, called MAGIC, was the forerunner of modern day BRL-CAD and was used for shotlines through vehicle targets. This is documented on pages 43-136, and was subsequently replaced by first GIFT and then librt software routines.

The main issue in this section is pages 142-147, which represent an early sample raytrace using MAGIC and are stamped “Not Reproducible” – guidance is requested on the correct method for crossing out, re-stamping, or otherwise re-designating these pages as releaseable.

1. Part 4 - “SAM-C Monte Carlo Program” - SAM-C was an extension of the UNC-SAM-2 software documented in AD647470. This report did not develop new neutron transport routines – it used the existing UNC-SAM-2 techniques and extended the geometry description techniques supported to include combinatorial geometry for the purposes of supporting more complex assembly descriptions. (see AD847576 page 151). Pages 151-256 detail the operations of the resulting SAM-C code, combining UNC-SAM-2 documentation with the details of the new geometry description routines.

A copy of the UNC-SAM-2 report AD647470, which is now public release, has been included as supporting material for reviewing Part 4 of AD847576.